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DIET AND CANINE HYSTERIA

EXPERIMENTAL PRODUCTION BY TREATED FLOUR*

BY

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During the past twenty years or more dog-owners in this country and in the U.S.A. have been troubled by sporadic outbreaks of a nervous disorder which has been called canine hysteria, running fits, or fright disease. The condition seems to have been noted first in the southern States of the U.S.A. about 1916 and in England about 1924, and to have increased in intensity and distribution since then. Much has been written on the subject, and the disorder has at one time or another been ascribed to many causes. These include internal and external parasites; deficiency of certain food factors, especially vitamins B, and A; deficiency of an amino-acid such as lysine; excess of proteins; allergy to food constituents and other substances such as pollen; toxicity of flour from the Far East; yeast; meat and the method of cooking it; botulism; infection of a virus type or a complication of distemper; and, finally, heredity. In recent years, however, the majority of writers seem to have agreed that (1) food is the causal agent, though there is no agreement as to whether the trouble is due to a deficiency in the food or to a toxic agent; (2) dog-biscuits and proprietary foods are often implicated; (3) a wheat product is the most likely causal agent in the dog food, including the biscuits; and (4) excitement and physical strain influence the onset and frequency of the attacks

Canine hysteria up to 1936 has been reviewed and discussed by Hewetson (1936); here, therefore, reference will be confined to some of the experimental investigations on the subject since that date. Melnick and Cowgill (1937) produced convulsive reactions in six adult dogs on diets in which gliadin was the sole protein and furnished 16% or more of the calorie intake. They also suggested that the toxicity of these high-gliadin diets might be due to protein sensitization. Arnold and Elvehjem (1939) found that a dog food made of wheat flour and meat scrap processed by dry heat caused fits in young dogs, which could be alleviated or prevented by adding to the ration a sufficient amount of unheated protein or protein-containing foodstuff. They thought that a lysine deficiency was involved. Later, however, the subject was again investigated by Wagner and Elvehjem (1944) in consequence of an unpublished observation by Parry that commercial wheat gluten produced symptoms of hysteria in dogs with great rapidity and intensity. They confirmed Parry's observation and suggested that the disease was caused by some toxic factor in the wheat products and not, as the 1939 work had suggested, by a deficiency of lysine. Further, they stated that the attacks were not prevented by vitamin A, vitamin B_1, hydrochloric acid, casein, or casein hydrolysate.

Canine Hysteria as Observed in this Laboratory

Although there is general agreement among writers as to the signs of the disease and the behaviour of the affected animals, it is possible that canine hysteria has been occasionally mistaken for and even superimposed on such conditions as vitamin A or vitamin B complex deficiency. It may be said at once that in the work to be described no such complication could occur, since the animals always received ample amounts of yeast and vitamin A, except in a few experiments devised to test the effect of vitamin A deficiency on canine hysteria.

The actual observed state of the affected animals in the course of the work will now be given. Apart from the periods of the so-called "attacks," dogs subject to hysteria can usually be recognized by their general demeanour. As compared with normal dogs of the same litter, they tend (1) to be less interested in their surroundings; (2) to run or walk more slowly; (3) to lift their forelegs high when walking and to bounce along when running; (4) to have dry mouths; (5) to stand in a shady corner if the sun is shining and to resist persuasion to run about; and (6) to be less friendly and more frightened. Although the most severe attacks may develop suddenly, the above abnormalities are usually seen for some days before the onset of hysterical outbursts; the actual attacks seem to represent temporary exacerbations superimposed on a chronic abnormal condition.

Once having had fits, a dog will usually continue to suffer intermittent attacks until the diet is changed. The attacks may recur at intervals of several days or a number of fits of varying intensity may develop in one day; they tend to be induced by any sudden stimulus, nervous strain, or change of environment; even bringing susceptible dogs from an outside run to an indoor kennel often precipitates the attacks, as does moving the animals from their usual room to a warmer one. Lactating bitches appear to be particularly prone to hysterical fits.

If the harmful diet is continued for some months the fits may be reduced in number or even stop, but the animal's general behaviour remains abnormal, as described above. A time may come, however, when a dog which seems to be acquiring immunity suddenly suffers the most severe epileptiform fits and dies.

Attacks vary from what is called slight hysteria to true epileptiform fits. In *slight hysteria* the animal has a frightened look, and usually stands with either fore or hind legs rather apart and ears back. Jerking of the head backwards may be seen. At this stage the animal will sometimes shake itself, take a drink of water, and then recover. Often the attacks begin as above, after which the dog rushes across the cage or run, but after dashing into the wall sits down, quiet and dejected-looking, and then slowly recovers. This is recorded as *hysteria*. In more severe cases the animal sits in a sphinx-like posture; its head soon starts jerking, and the movement spreads throughout the body. Next it starts running round and round its cage, sometimes barking furiously, and either dashes into the walls, apparently without seeing them, or attempts to jump up them, overturning food dishes and water-pots, and getting both itself and its cage into a filthy condition. It may begin to recover at this stage, stop running, and stagger around like a drunken person. It will sit down, looking very miserable, but at the end of about 30 minutes may be more or less normal. This is recorded as a *hysterical fit*.

If the dog does not recover at this stage it goes on running, froths at the mouth, usually howls, and collapses. Even then it still moves its legs with a running movement. Finally this movement ceases and the animal remains still, with rather

* Preliminary report

deep breathing. After a varied time—5 to 30 minutes—which appears to bear a relation to the severity of the fit, it recovers consciousness, gets up, and staggers around with marked ataxia; then follow the recovery stages outlined for a hysterical fit. This is recorded as a true *epileptiform fit*. If the animal does not recover consciousness within about thirty minutes it usually dies, although it may remain in an unconscious state for anything up to 36 hours.

Basis of Present Investigation

By 1931 the idea had developed in this laboratory that outbreaks of hysteria were due to the bread portion of the diet, and, since that time, when any such outbreak has occurred the source of the bread supply has often been changed and the fits have usually ceased. Another method adopted empirically, and because we had never seen a dog develop this hysterical condition when oatmeal formed the major part of the diet, was to replace a half or more of the bread by oatmeal, and this was also effective in stopping the outbreak. Samples of the flour from which the suspected breads had been made were obtained for inspection, and thanks are due to a number of bakeries for help in this connexion.

During the period of the war it became necessary to obtain supplies of flour of known extraction and composition for experiments on nutrition, and the Cereal Division of the Ministry of Food arranged that these supplies should be prepared at one mill. The miller responsible for the production of the flour often kindly brought it in person to the laboratory, and it was natural to tell him that we suspected some flours of being responsible for outbreaks of canine hysteria and thought a bleaching or improving process might be doing the harm. He asked to be shown samples of the flours, and immediately on seeing them said that all had been heavily bleached and probably improved.

The following are the chemical agents in use for bleaching and improving flour (Lockwood, 1945; Smith, 1944):

Bleachers.—Nitrogen peroxide (gas); benzoyl peroxide (powder).

Improvers.—Ammonium persulphate (powder); potassium persulphate (powder); potassium bromate (powder); acid calcium phosphate (powder).

Combined Bleachers and Improvers.—Chlorine (gas); chlorine and nitrosyl chloride (beta gas); nitrogen trichloride (agene) (gas); chlorine dioxide (addage) (gas).

Thus there seemed a large choice from which to pick out the hypothetical offending agent. However, in discussing the matter further with the miller, the possible implication of wheat protein as the aetiological factor in canine hysteria was mentioned, reference being made to the results obtained by Melnick and Cowgill on gliadin and by Wagner and Elvehjem on wheat gluten respectively. Thereupon he said it was well known that the agene process, in which NCl_3 gas was used, affected the gluten of flour, and that this method of improving flour was used very extensively. On being challenged on this point, he said he would not be surprised if as much as 90% of flour milled in this country and used for bread-making was "agenized." He was therefore asked to supply this laboratory with agenized flour and an equal amount of untreated flour from the same grist so that the hypothesis could be experimentally tested. These are the flours described in this paper as treated (agenized) and untreated (no agene).

Agene is said to consist of approximately 1% nitrogen trichloride in air saturated with water-vapour. The gas is generated by bringing together chlorine, water, and ammonium chloride, and is removed from the solution by aeration; the air and gas are then brought into intimate contact with the flour in an agitator. The amount of agene used in any operation can be closely controlled and depends largely on the extraction rate of the flour or on the particular portion of the wheat berry milled.

Experimental Results

The flours were tested by feeding young dogs of the same litter on treated and untreated samples. The diet used was one known to be adequate and compatible with normal growth and health provided untreated flour or oatmeal was used as the cereal. It consisted of: separated milk powder, 20 g.; cereal, 50–340 g.; lean meat, 15 g.; peanut oil, 10 ml.; bakers' yeast, 5% of the cereal; ascorbic acid, 5 mg.; NaCl, 1–2 g.; vitamin A, 2,000 or 3,000 i.u.; and vitamin D_3, 200 i.u. The cereal of the diet was cooked in a steamer for 90 minutes at a pressure of 0.5 lb.

It soon became evident that the hysterical outbreaks could often be produced by the above diet if it contained the treated flour but not if it contained the untreated flour. In young puppies the attacks came on insidiously and usually took some weeks to develop. In older growing animals, whose appetites were larger, it was often possible to produce the condition more quickly—sometimes after a fortnight or less of feeding on a diet which included agenized flour. The degree of susceptibility varied from litter to litter and even from animal to animal in the same litter. Changing the flour in the diet of a badly affected animal to the untreated variety resulted in a sudden stoppage of the fits, but the animal might remain nervous and shy for a period.

Tables I–III show the effect of the treated (agenized) as against the untreated flour in regard to the number of hysterical attacks and fits produced in the animals. Attacks of slight hysteria have not been tabulated, but these were numerous in the animals receiving treated flour and were never seen in those having untreated flour. All the attacks recorded were observed, except those in the column headed "probable fits," which were deduced from the condition of the animal and its cage after periods when observation was not continuous. Many of these so-called "probable" fits were without doubt severe hysterical fits, for both animals and cages were filthy, water-pots and food dishes were overturned, and sawdust scattered, as was the case after observed fits. The cages of the animals receiving treated flour were often found in this condition in the early morning, suggesting that the night may be a common time for the attacks; but, since the severity of an attack could not be judged solely from the state of the cage after a lapse of possibly several hours, these hypothetical fits have not been included in the tables.

TABLE I

Dog No.	Type of Flour	Time to First Attack	Hysteria	Hysterical Fits	Epileptiform Fits	Probable Fits	Total
			1st Period (24 *weeks*)				
3175	Untreated	—	0	0	0	0	0
3176*	Treated	4 weeks	0	10	5	5	20
3177		4 "	9	10	6	5	30
			2nd Period (12 *weeks*)—*Flour reversed*				
3175	Treated	1 week	15	6	1	2	24
3177	Untreated	—	0	0	0	0	0

* Died after 6 weeks on diet, after having continuous epileptiform fits for two days.

It is seen from Table I that during the first period of 24 weeks dog 3175, receiving untreated flour, had no hysteria or fits, while 3177, which received the treated flour, had 30 attacks of various kinds. During the second period, lasting 12 weeks, when the types of flour were reversed, dog 3175 suffered from 24 attacks and 3177 had none.

TABLE II

Dog No.	Type of Flour	Time to First Attack	Hysteria	Hysterical Fits	Epileptiform Fits	Probable Fits	Total
3187*	Treated	4 weeks	5	7	3	1	16
3188	"	4 "	4	9	0	4	17
3189	Untreated	—	0	0	0	0	0
3190†	Treated	4 weeks	4	13	6	4	27
3191	"	4 "	5	11	2	3	21
3192	Untreated (1st 15 weeks)	—	0	0	0	0	0
	Treated (8 weeks)	2 weeks	2	2	0	1	5

* Died after 23 weeks on diet after having a severe epileptiform fit.
† Died after 15 weeks on diet after having continuous epileptiform fits for 36 hours.

Table II also shows how definite is the effect of the agenized flour. The one dog of the litter having the untreated cereal throughout, No. 3189, had no hysterical bouts or fits during the experimental period of 22 weeks, whereas the four having treated flour all the time had attacks varying in severity and ranging in number from 16 to 27 during this period. The last

of the series, No. 3192, whose diet was changed in the course of the experiment, had no fits during the 15 weeks it received untreated flour, but two weeks after the substitution of treated (agenized) flour the attacks started, and it had five of them.

Vitamin A Deficiency and Canine Hysteria

Canine hysteria can be superimposed on vitamin A deficiency when animals have a diet deficient in vitamin A and containing agenized flour. Examples are seen in Table III, which shows the results of an experiment made on four dogs of the same litter, two of which had the basal diet described above, containing 2,000 i.u. of vitamin A daily, and the other two had the same diet with the omission of the vitamin. No hysteria or fits developed in any of the dogs during the 15 weeks when untreated flour was given, whether vitamin A was included in the diet or not. In the second period treated (agenized) flour was substituted for the untreated type in each case, and all four animals suffered to some extent from hysteria or fits, though the vitamin A content of the diet remained the same as during the first period. After 10 days on this diet untreated flour was again given to two of the animals—Nos. 3203 and 3205—the first being vitamin-A-deficient and the other normal. The flour has now been changed for one month, but, except during the first day, neither dog has had any form of fit, and, though not yet fully recovered, they have had no outburst which could be rated even as slight hysteria.

TABLE III

Dog No.	Vitamin A in Diet	Type of Flour	General Condition of Animal	Hysteria and Fits
			1st period (15 *weeks*)	
3201	−A	Untreated	Definite A deficiency	None
3202	+A	"	Normal	"
3203	−A	"	Definite A deficiency	"
3205	+A	"	Normal	"
			2nd period (10 *days*)	
3201	−A	Treated	Definite A deficiency	Slight hysteria
3202	+A	"	Normal	4 hysterical fits
3203	−A	"	Definite A deficiency	8 severe epileptiform fits
3205	+A	"	Normal	4 " "

Discussion

The results of this investigation show that the practice of bleaching and improving flour by NCl_3, known as the agene process, is responsible for a flour which produces canine hysteria under the conditions described above. The evidence is of a direct kind, the abnormality being produced by diets containing the treated flour, samples of the same flour untreated being harmless. Substitution of the treated flour by the untreated type tends to reverse the animal's condition and allows complete recovery from the hysteria and fits, even though the animal itself may not be normal. Recovery from the slighter but more chronic condition appears to bear a relationship to the length of time the animals have received the treated flour. If they have had it for a long period—e.g., six months—recovery may not be complete even after three to four months on the untreated flour, although the more severe abnormalities, such as hysterical and epileptiform fits, will cease within 24 to 48 hours of the change of diet.

In this connexion the Report of the Departmental Committee on the Treatment of Flour with Chemical Substances (1927) states: "An obvious method of investigating the presence of harmful compounds or suspected impairment of nutritive properties is by feeding experiments with animals. When such experiments give positive results they are conclusive, but negative results cannot be regarded as innocuous." The results described in this paper are of the positive kind referred to in this statement. It is, however, of interest to note that during the course of the present work feeding experiments on rats with agenized flour were negative, just as similar experiments referred to in the report of the Departmental Committee on feeding rats with flour treated commercially with chlorine and nitrogen trichloride were "inconclusive."

It is agreed by experts in milling practice that the agene process affects the gluten of flour particularly. In the above-mentioned report it is stated that "chlorine can act energetically upon gluten, and that the nature of the reaction includes the entrance of chlorine into such important parts of the gluten complex as the tyrosin and tryptophane groupings"; and, later, that "our observations upon chlorine apply also to nitrogen trichloride" and "evidence has been given that its action [i.e., that of NCl_3] on the protein of flour is probably similar to what we have already described in the case of chlorine." No experiments have been made in the present work with flour bleached and improved by chlorine.

These statements from the report, written nearly 20 years ago, taken in conjunction with the results obtained in the present work showing the toxic effect of agenized flour, must be considered in relation to the work of Melnick and Cowgill (1937), of Parry, and of Wagner and Elvehjem (1944), referred to earlier, and it would be a matter of interest to know whether the gliadin and gluten used by the U.S.A. workers were prepared from agenized flour. It is believed that this process of improving flour is, or has been, as popular in the U.S.A. as in this country, so it is not unlikely that the proteins used by the U.S.A. workers were prepared from agenized or similarly treated flours. Obviously the next test to be made in regard to canine hysteria was to compare the effects of wheat gluten made from untreated and agenized flour respectively, and this is now being done.

When the idea of testing the effect of agenized as against untreated flour was first mooted the point was raised that, though proprietary dog-biscuits were said to be associated with canine hysteria, it seemed unlikely that the flour used in such biscuits would be agenized. The miller, however, said that, although flour intended solely for dog-biscuits would not usually be subjected to an improving process, a long-extraction flour which had been so treated was, in fact, often used in their manufacture. Indeed, he regarded this fact as supporting the idea that agenizing might well hold the solution to the problem of the observed hysterical attacks and account for the variations in reports implicating dog-biscuits.

The agenized flours used in this investigation were not specially prepared overbleached specimens, but, according to our miller friend, were all subjected to a normal commercial bleach. At different times the extraction rate of the flours has varied between 80 and 90%. Some batches have had no added calcium and others have had the normal statutory additions prescribed for 85 and 90% extraction flours, but all, irrespective of calcium content or extraction rate, have given the same results so far as canine hysteria is concerned. It is possible to increase the bleach in order to camouflage a clumsy separation in the mill. It is likely that such a flour would be even more powerful in producing the hysterical condition here described.

The abnormal behaviour of the animals affected by the agenized flour suggests that the central nervous system is primarily affected by some toxic agent, but other organs may also be involved. A few dogs have died in these attacks, but ordinary post-mortem examination has not yet revealed any lesion which can be regarded as the essential one. It is clear that investigations must now be made to see whether human beings are affected by bread made from flour improved by NCl_3.

Summary

Canine hysteria, sometimes called running fits or fright disease, a nervous condition which has troubled dog-owners both in this country and in the U.S.A. for the past 20 years or so, has been produced in growing dogs by including in their diet flour that has been improved and bleached by NCl_3, the agene process. The same flour when untreated did not produce the nervous malady. Affected dogs returned towards normal and the typical hysteria and fits stopped when the agenized flour was removed from the diet and replaced by unimproved flour of the same grist.

Warm thanks are due to the miller mentioned above, who wishes to remain anonymous, for the help he has given in this work. Not only did he supply with promptness and great care the specimens of flour needed for the research, but he also placed his specialist knowledge as a scientific miller at our disposal and so made the investigation possible. I wish also to thank members of the staff of the laboratory, especially Mr. R. J. C. Stewart, for their help and zeal in this work.

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2-THIOURACIL IN THE TREATMENT OF CONGESTIVE HEART FAILURE

BY

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It has long been thought that removal of the influence of the thyroid gland might prolong life in cases of congestive heart failure. The theoretical purpose of such treatment is usually stated to be reduction of the total oxygen requirements of the body and decrease in the work of the heart (Blumgart, Levine, and Berlin, 1933; Fishberg, 1940). Total thyroidectomy has not proved entirely satisfactory, since the immediate mortality in severe cases was high (Cutler and Hoerr, 1941). The development of the goitrogenic substances for clinical use (Astwood, 1943) has indicated another possible method of diminishing thyroid activity, and this paper reports the effects of 2-thiouracil on cases of congestive heart failure which had failed to respond to ordinary methods of treatment and in which the immediate prognosis was poor.

Methods

The methods were similar to those published previously (McMichael and Sharpey-Schafer, 1944a; Howarth, McMichael, and Sharpey-Schafer, 1946), cardiac output and right auricular pressure being measured by cardiac catheterization. The observations were made with the patient's trunk elevated 45°. Right auricular pressure is about −7 cm. (sternal angle=0) in normal subjects in this position. The work of the heart is calculated arbitrarily from the product of the cardiac output and the blood pressure.

Results

Cases of severe congestive failure treated with thiouracil may be divided into two groups: low-cardiac-output heart failure (hypertensive and valvular heart disease) and high-cardiac-output heart failure (heart failure with emphysema). Initial data before thiouracil are shown in Table I. Cases 1, 3, 4, and 5 showed the usual response of their group to a fall in venous filling pressure—i.e., an increase in cardiac output. The slight fall in output after venesection in Case 2 indicated a less severe case. In the most severe cases, 6 and 7, little change in cardiac output was produced by a decrease in venous filling pressure. Starling's venous pressure–cardiac output curve has been suggested as a convenient concept for indicating the status of an individual heart (McMichael and Sharpey-Schafer, 1944b). In the emphysema group the usual status lies near the highest point of the curve, so that a fall of venous pressure results in a decrease in cardiac output (Cases 8, 9, 10, and 11). Only the most severe cases show an increasing output (Case 12) similar to the low output group. Several cases had a long period of treatment by ordinary methods—rest in bed, digitalis, and venesection in the low-output-heart-failure group and prolonged sojourn in an oxygen tent in the emphysema group. In some patients this treatment had caused little or no clinical improvement, the venous pressure remaining high.

Clinical Effects of Thiouracil.—The dosage of thiouracil and results of treatment are shown in Table II. No clinical benefit from thiouracil can be expected under a week or ten days. Fig. 1 (Case 1) shows an example of the fall of venous pressure

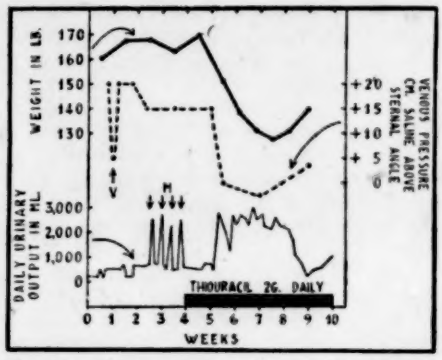

FIG. 1.—Case 1. Venous pressure fell and there was a diuresis after 10 days on thiouracil. V=Venesection. M=Mercurial diuretic.

and disappearance of oedema in a successful case. The long period of observation under treatment by ordinary methods in several cases makes spontaneous improvement unlikely. After several months on thiouracil signs of thyroid deficiency appear. The mental reactions and movements of the patient become slower. The skin becomes thickened, the hair dry, and the voice deeper and hoarser. In some cases the thyroid gland appears to increase in size; in others no enlargement is detectable. Agranulocytosis did not develop in any of these cases of congestive heart failure.

Effect on Oxygen Consumption.—Basal and resting oxygen consumption are reduced by thiouracil (Fig. 2). The basal

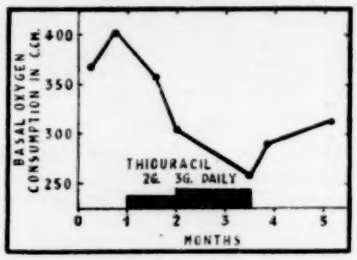

FIG. 2.—Case 2. Effect of thiouracil on basal oxygen consumption.

metabolic rate is usually increased in congestive heart failure. Prolonged treatment with thiouracil did not decrease the basal metabolic rate below −25% in any of these cases.

Effect on Cardiovascular Dynamics.—Results in a case from each group are shown in Table III. In Case 1 cardiac output was the same after thiouracil as during the control period, for, although resting oxygen consumption was less, the arterio-venous oxygen difference had decreased in parallel. Since the blood pressure was the same, the work of the heart did not

TABLE I.—*Circulatory Data Before Thiouracil*

Case	Age	Sex	Diagnosis	Right Auricular Pressure cm. Saline above Sternal Angle	Cardiac Output litres per min.	Arterial O_2 Saturation %	O_2 Consumption c.cm./min.	Blood Pressure mm. Hg	Heart Rate per min.	Remarks
					Low-output Heart Failure					
1	52	M	Hypertension	+20	3·1	87·5	287	190/160	100	C.O. increased after venesection
2	43	M	M.S., A.S., A.I.	+3·5	4·8	94	360	148/90	74	C.O. slight fall " "
3	43	F	M.S.	+21	3·15	88	289	120/90	118	C.O. increased " digitalis
4	59	M	A.I.	+2	4·4	91	297	208/108	88	C.O. " " venesection
5	35	F	M.S., A.I. Hypertension	+21	1·6	92	239	248/140	88	C.O. " " "
6	39	F	M.S.	+5	3·7	90	233		92	C.O. no change after digitalis
7	72	F	M.S., A.I.	+6	2·6	92	230	140/90	120	C.O. slight increase after digitalis and theophylline
					Heart Failure with Emphysema					
8	31	M		+16	8·4	66	327	140/92	100	C.O. fell after venesection
9	56	M		+8·5	9·0	48·5	320	98/60	102	C.O. " " digitalis
10	54	F		+1	5·0	71	280	85/60	108	C.O. " " "
11	52	M		+6	6·6	67·5	260	156/92	104	C.O. " " venesection
12	42	M		+5	6·5	42	203	118/68	104	C.O. increased after venesection

TABLE II.—*Effects of Treatment with Thiouracil*

Case	Probable Duration of Failure before Admission	Treatment before Thiouracil	Daily Dose of Thiouracil	Result
1	4 months	B.D.M., 1 mon h; no improvement	2 g. f r 154 days	V.P. normal for 100 days. Died after 154 days
2	3 „	B.D.M., 2 months; slight improvement	2 g. „ 28 „ 3 g. „ 18 „	Thiouracil stopped. Alive, working 18 months later
3	2 years	B.D.V.M., 6 months; no improvement	2 g. „ 275 „	V.P. normal. Left hospital after 3 months. Thiouracil stopped. Died 170 days later
4	1 year	D., 1 year. Progressive deterioration	1 g. „ 42 „	Slight improvement. Died
5	5 years	B.D.V.M., 7 days; no improvement	2 g. „ 33 „ 1 g. „ 21 „	V.P. fell to +2 cm. Died 3 months later
6	6 „	D., 6 years; chronic failure	1 g. „ 18 „	Initial improvement. Died
7	2 „	B.D., 4 days; no improvement	2 g. „ 23 „	No improvement. Died
8	1 year	B.D.O_2, 2 months; no improvement	2 g. „ 93 „ 1 g. „ 94 „	V.P. normal. Working. Arterial O_2 saturation = 84%
9	3 months	B.O_2, 2 weeks; no improvement	2 g. „ 160 „ 1 g. „ 36 „	V.P. normal up to 8 days before death (acute respiratory infection)
10	6 „	B.O_2, 6 weeks; slight improvement	2 g. „ 61 „	V.P. normal. Thiouracil stopped. Died 169 days later
11	3 weeks	B.D.O_2, 10 days; slight improvement	2 g. „ 37 „	V.P. normal. Thiouracil stopped. Died outside hospital of acute respiratory infection
12	1 year	B.D.V.O_2, 1 month; no improvement	2 g. „ 10 „ 1 g. „ 22 „	No change. Died

B. = Bed-rest. D. = Digitalis. V. = Venesection. M. = Mercurial diuretics. O_2 = Oxygen tent. V.P. = Venous pressure.

TABLE III.—*Circulatory Data Before and After Thiouracil*

Case	Time	Right Auricular Pressure cm. Saline above Sternal Angle	Cardiac Output (litres per min.)	Arterial O_2 Saturation (%)	O_2 Consumption (c.cm./min.)	A.V. O diff. (c.cm./litre)	Blood Pressure	% Change Cardiac Work
1	Before	+20	3·1	87·5	287	92	190/160	No change
	After	+12	3·1	91	199	64	198/155	
4	Before	+8·5	9·0	48·5	320	35·8	98/60	25% decrease
	After	−7	5·4	61	263	48·4	114/80	

change. In Case 9 the high initial output decreased to a normal level. This was due not only to a decrease in the oxygen consumption but to an increase in the arterio-venous oxygen difference.

Effect on Thyroid Gland.—Detailed histological studies will be reported elsewhere on two surgical biopsies and ten post-mortem specimens (Doniach and Sharpey-Schafer, to be published). Clear-cut evidence of stimulation was present in cases receiving more than 70 g. The average weight of hyperplastic glands was not significantly greater than that of control untreated cases. Colloid re-formed and follicular epithelium was reduced in height within a few months of cessation of thiouracil treatment.

Discussion

"Clinical improvement" in patients with severe chronic congestive failure may be defined as a change which shows itself by a fall of venous pressure towards normal levels and an increase in exercise tolerance, which allows the patient to get about or to leave hospital. This definition covers both the high-output and the low-output groups. The data presented in this paper suggest that some cases which have reached a chronic state on ordinary methods of treatment will show "clinical improvement" when the activity of the thyroid gland is depressed by thiouracil. No benefit can be expected in cases which are becoming rapidly worse, since there is probably little effect on thyroid activity under ten days.

The exact mechanism by which induction of a hypothyroid state results in improvement is still uncertain. It involves the nature of the changes producing "congestive heart failure"—a subject on which our knowledge is as yet scanty. When the venous filling pressure is lowered by venesection or digitalis in cases of low-output heart failure, the cardiac output increases, and "clinical improvement" is associated with increased work of the heart (McMichael and Sharpey-Schafer, 1944b; Howarth, McMichael, and Sharpey-Schafer, 1946). In these cases, however, the oxygen consumption is unchanged as an immediate result of treatment.

Case 1 shows that the work of the heart may not change after thiouracil, and it is probable that some cases of low-output heart failure may show increased work in the hypothyroid state. In cases treated with thiouracil, although cardiac output may be unaltered it is maintained at a lower filling pressure and in relation to the oxygen consumption of the individual it is relatively increased.

Detailed studies on cases of heart failure with emphysema will be reported elsewhere, but in view of the poor prognosis in this group it is encouraging that even a few cases can be improved sufficiently to leave hospital.

Summary

Cases of severe congestive heart failure showing no response to usual therapy (bed-rest, digitalis, and mercurial diuretics) were given 2-thiouracil 1 to 2 g. a day over long periods. Life may be prolonged both in the low-cardiac-output cases (valvular and hypertensive heart disease) and in the high-cardiac-output cases (heart failure with emphysema).

In the low-output group the arterio-venous oxygen difference may decrease as well as the resting oxygen consumption. The work of the heart may be unchanged, but output is maintained at a lower venous pressure, and in relation to oxygen consumption cardiac output is relatively increased.

Cases of high-cardiac-output heart failure with emphysema may improve sufficiently to leave hospital in spite of permanent reduction of arterial oxygen saturation.

There is histological evidence that the thyroid returns to normal after stopping thiouracil.

These observations were made in collaboration with Dr. John McMichael and Dr. Sheila Howarth. The Medical Research Council defrayed some of the expense.

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Assistant nurses who have been enrolled by virtue of two years whole-time nursing experience acquired since Sept. 3, 1939, may be granted a remission of six months in the normal three-year period of training for State registration. This concession is already available to men and women who have had suitable nursing experience in the Forces or as members of the Civil Nursing Reserve, the British Red Cross Society, or the St. John Ambulance Brigade, and the Minister of Health has now informed hospital authorities of its extension to assistant nurses. Applications should be made to the hospital at which the applicant wishes to train. A concession in the period of training for the Tuberculosis Association's certificate is also announced.

DIAGNOSIS OF CHRONIC DYSENTERY IN SERVICE PERSONNEL

ANALYSIS OF 1,000 SIGMOIDOSCOPIES

BY

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The conclusion of hostilities has led to the demobilization of large numbers of Service personnel, many of whom have served in the Tropics, and an aftermath of recurrent dysenteries and chronic diarrhoeas will be inevitable in a small minority on their return to civil life. It is felt that an analysis of 1,000 diagnostic sigmoidoscopies carried out in the last two years will be of interest. The cases under review were either invalided home with a diagnosis of chronic amoebic or bacillary dysentery or returned to the United Kingdom at the expiration of their tour overseas, and were referred by their station medical officers in England for a sigmoidoscopy in view of their symptoms. In addition, a small group of men who had been invalided from overseas for surgical or other reasons were found to be *Entamoeba histolytica* cyst carriers on routine stool examinations and were sigmoidoscoped. A small series of sprue cases are included, as early in the course of these investigations we were surprised at the number of undetected cases of dysentery among them.

Method

Sigmoidoscopies were carried out in the knee–elbow position without an anaesthetic. The new type plastic sigmoidoscopes were used; these take a 6-volt car bulb light and give an excellent illumination, and a magnifying eyepiece of 4 diameters was invariably used. The question of preparation is a most important one, as any preliminary bowel washout within six hours of sigmoidoscopy, even with normal saline or tap water, produces a hyperaemia that renders extremely difficult, if not impossible, the identification of the "raised crateriform pits" pathognomonic of chronic quiescent amoebiasis; this is the reason why this characteristic pitting is so often missed.

The following preparation was eventually adopted. On the previous day a light lunch and tea are followed by a bowel washout with ordinary tap water at 8 p.m.; no supper is given that night. No breakfast or early cup of tea is allowed on the morning of the examination. A natural call to stool must be obeyed, but the patient should make no attempts at voluntary straining; the bladder should be emptied immediately before examination. A scraping and swab from any suspicious area should be mounted and examined without delay for *E. histolytica*, and a warmed plate of Hynes's modification of Leifson's desoxycholate citrate medium inoculated and cultured. If there is no obvious lesion a culture should be made from a direct swabbing of the bowel wall, and any faeces adherent to the bowel wall examined for *E. histolytica*.

Out of 1,000 cases sigmoidoscoped at this institute only 513 gave positive findings; in the remaining 487 both sigmoidoscopy and laboratory investigations were negative (see Table I). The positive laboratory findings were as follows: Amoebiasis, 215 (mixed amoebic and bacillary dysentery—11); bacillary dysentery, 52 (Shiga 2, Schmitz 3, Sonne 4, Flexner 43); lambliasis, 40. In approximately 20% of the 215 amoebic cases the sigmoidoscopic appearances were normal. In bacillary dysentery, out of 52 positive laboratory findings the appearances were normal in 9 cases. (Two cases were not sigmoidoscoped before treatment.)

Amoebiasis

The *amoebic ulcers* found conformed to the textbook descriptions, but 5 cases of amoeboma were encountered in cases of amoebiasis which had remained unrecognized for long periods. Dyak hair sloughs were present in only 4 cases, and all these were extremely refractory to treatment.

Raised crateriform pits, in my opinion, are pathognomonic of quiescent amoebiasis. They were present in 169 patients, in 78 of whom *E. histolytica* were found in the stools. The crateriform pits are circular in shape, from 1 to 2 mm. in diameter, and are raised about a millimetre above the surrounding mucosa. In order to recognize them it is essential that no bowel washout be administered for at least six hours before the examination, as the resultant hyperaemia caused by even so bland a fluid as normal saline will completely obscure them. A good description of these pits has recently been published by Cropper (1945). My only criticism of his excellent article is that I consider a half-strength soap-and-water enema given six hours before a sigmoidoscopy absolutely contraindicated by the resultant hyperaemia. It is usually impossible to find *E. histolytica* in scrapings taken directly from the pits, owing to the amoebae lying dormant deep in the submucosa, but their presence calls for repeated and persistent search in the stools for cysts. I do not hesitate to treat cases showing this characteristic pitting even if the stools are negative, as I look upon the condition as positive evidence of quiescent amoebiasis; in the majority these pits completely disappear after specific anti-amoebic treatment, or are replaced by circular depressions in the mucosa. In a small number of cases where these pits have still been present after specific treatment and the stools were negative I have allowed the patients to leave hospital under surveillance, only to find that sooner or later they have had a clinical relapse with positive stool findings. These raised crateriform pits must not be confused with the pseudo-cystic "sago grain" follicles occasionally following bacillary dysentery (Manson-Bahr, 1943). The essential points of the amoebic pits are their regularity, concentric appearance, and the presence of the circular lip of the volcano surrounding a slightly depressed crater. Raised lymphoid follicles must also be distinguished from these crateriform pits; they are evidence of a lymphoid hyperplasia, and again the distinguishing feature is the absence of the central pit. It is difficult at times to be certain whether the pits are still active at the conclusion of treatment; a gentle swabbing giving rise to petechial bleeding at the site of the pits is always suggestive, and a further test is to provoke an artificial diarrhoea by giving the patient salts thrice daily for three days and examining fresh stools passed in the laboratory annexe.

Depressed pits were present in 126 cases. *E. histolytica* was found in 20 of these, and the explanation is that active lesions were probably present higher up in the colon. Pitting is frequently seen in healed bacillary dysentery cases (Hamilton Fairley and Boyd, 1942); but here it is more irregular in shape and size, is tessellated, and lacks the circular uniformity of the pitting in amoebiasis, which has been aptly described as "pigskin pitting," and is, in my opinion, evidence of healed amoebiasis.

Symptomless Cyst Carriers.—It is the practice in R.A.F. hospitals for all patients who have been invalided home from overseas to have a complete blood count and three stool examinations; as a result of this 58 symptomless cyst carriers were detected. A sigmoidoscopy was carried out before starting treatment, and in 16 cases typical crateriform pits were seen. In one case, in addition to active pitting, a small superficial ulcer some 2 mm. in diameter was present on the anterior wall of the rectum, although the patient categorically denied any symptoms referable to the intestinal tract. It is assumed, in the 42 cases in which the sigmoidoscopic appearances were normal, that lesions were present out of range of the sigmoidoscope.

Complications of Amoebiasis

Amoebic Abscess.—Ten cases occurred in this series, of which 8 developed overseas. In 2 of the latter a spontaneous rupture of the abscess into the general peritoneal cavity was diagnosed only at operation, and in both the abscess was in the left lobe of the liver.

Amoebic Hepatitis.—In a total of 60 cases only 4 developed in England. A moderate leucocytosis was found to be of great value in the differential diagnosis, and a routine screening of the diaphragm was carried out in every case of amoebiasis. The lowest total white cell count recorded before treatment was begun was 14,200 per c.mm., the highest 27,500; the average for the series was 15,800 with 75% polymorphonuclears. It is recommended that, as this finding is so constant, a total white and differential count should be carried out in every case of amoebiasis to exclude amoebic hepatitis. The

value of this constant leucocytosis was first stressed by Manson-Bahr (1943). Paradoxically the total white cell count may not be raised in a small proportion of cases of amoebic abscess of the liver.

Amoeboma or Amoebic Granuloma.—This may be defined as a hyperplastic localized tissue reaction of the colon, the hypertrophy chiefly affecting the submucosa, which is infiltrated with lymphocytes, histiocytes, and plasma cells, together with *E. histolytica* in localized clusters. The condition is relatively rare, but occurs in a chronic unrecognized amoebic infection and is liable to be mistaken for a neoplasm. The symptoms are usually atypical, and it is felt that, unless surgeons are warned of the possibility of its occurrence, many cases may be operated upon unnecessarily, with disastrous results. Five cases were detected—4 at home, and 1 overseas in an ex-P.O.W.; in 4 out of the 5 the growth was within the range of the sigmoidoscope. It is in these cases that the protean manifestations of amoebiasis lead the clinician astray, the usual symptoms being a history of intermittent attacks of alternating diarrhoea and constipation associated with the occasional passage of blood, which is as a rule attributed to the concomitant haemorrhoids so often present. On physical examination the finding of a palpable abdominal swelling or a fungating cauliflower mass in the rectum naturally suggests malignancy. In one case, which had remained unrecognized for many months in various hospitals, it was only on taking scrapings from the ulcerated growth in the rectum that the diagnosis was made and *E. histolytica* was demonstrated for the first time: six previous examinations of the stools had been completely negative. Stenosis of the lumen of the bowel is often present, but after a course of emetine and penicillin the growth simply melts away and fibrosis and stricture rarely develop. If the response to specific treatment does not lead to the complete disappearance of the growth a dual pathology must be considered and laparotomy is necessary, as in a case recently reported by Naunton Morgan (1944).

Stricture of the Rectum.—This, as a remote complication of amoebic dysentery *per se*, probably rarely occurs. However, one case was seen in this series in which the diagnosis was fully substantiated, though the actual pathology is open to conjecture. The patient, a proved case of acute amoebic dysentery, while undergoing routine specific treatment developed an acute exacerbation followed by the passage of a large slough per anum, which on section was shown to be a separation *en masse* of the inner bowel wall; attempts to isolate bacillary dysentery organisms were unsuccessful. Stenosis followed this sloughing, and a colostomy was carried out in India. On his return to the United Kingdom an attempt was made to close the colostomy, but the wound broke down and active *E. histolytica* were found in the discharge and also in a biopsy from the site of the stricture; this in spite of the fact that all stool examinations had been negative for the last three months and he had received intensive anti-amoebic treatment in the interim between the first and second operations. The aetiology here is obscure, but it is possible that the sloughing of the bowel wall was due to a massive secondary bacterial invasion in a mucosa that was the site of extensive amoebic ulceration. Hargreaves (1946) reports an incidence of 1% of rectal stricture in chronic amoebic dysentery; possibly a similar aetiology is responsible.

Amoebiasis Simulating Appendicitis.—Four cases of this occurred, where, following an appendicectomy in India, acute amoebic dysentery ensued within 48 hours of the operation, and it is probable that the symptoms were due to an amoebic involvement of the caecum. Perforation of an amoebic ulcer of the caecum occurred in one case which was operated on successfully in India.

Malignant Disease.—Six cases of adenocarcinoma of the rectum or sigmoid were seen. In only one patient had this diagnosis been made overseas, and ironically he developed amoebic hepatitis while convalescing from his colostomy in the United Kingdom. The ages of the patients were 31, 37, 38, 39, 43, 43 years, which is considerably higher than the mean age group of this series—namely, 26 years. In only two cases had *E. histolytica* been found, and all the cases had received repeated courses of treatment for amoebiasis or bacillary dysentery with no effect, in spite of negative laboratory findings. In three cases the growth was within reach of the examining finger, and the pronounced induration present suggested malignancy rather than amoeboma.

Lambliasis

Cysts or free forms were found in only 40 cases, in 18 of which infestation appeared to be giving rise to a chronic diarrhoea for which no other cause could be found, and the symptoms disappeared after mepacrine therapy. This surprisingly low incidence (4%) of lambliasis is probably due to the fact that the majority of these patients had received repeated therapeutic courses of mepacrine for malaria. In three instances *Lamblia intestinalis* was found in patients who had been taking suppressive mepacrine in the normal dosage over long periods. Whittingham (1923) in a similar series of 716 cases found 8% of cases of lambliasis, so one can presume that suppressive mepacrine has cut down the incidence.

TABLE I.—*Sigmoidoscopic Appearances in 513 Cases with Positive Findings*

	E. hist. Positive	Mixed Amoebic and Bacillary Dysentery.	Bacillary Dysentery	Negative Laboratory Findings in England	Remarks
Ulcers (56)	42	1	4	9	Ulcers with Dyak hair sloughs, 4; typical button-hole ulcer, 1; amoeboma, 5
Raised crateriform pits (169)	77	1	2	No *E. hist.* found in 91	Positive *E. hist.*, 46%
Depressed pits (126)	17	3	5	101	" " 15%
Hyperaemia only (78)	25	5	20	28	
Normal sigmoidoscopy with positive laboratory findings (70)	43	1	8		Lamblia in 20. Some of these were cases of double infection with either amoebic or bacillary dysentery. Two bacillary dysentery cases not sigmoidoscoped before treatment

Miscellaneous Findings:
Adenocarcinoma .. 6
Multiple polyposis .. 1
Ulcerative colitis (idiopathic) .. 7
(6 completely negative laboratory findings at home or overseas. Sigmoidoscopy typical.)

Bacillary Dysentery

The large number of cases in which the causative organism of bacillary dysentery was cultured from sigmoidoscopic swabbings and from fresh stools in these chronic cases is surprising, especially in view of the disappointing results obtained in the past (Martin and Williams, 1918). These results must be due to the extreme selectivity of the modern media, as in 31 of the 52 cases the diagnosis had never been made overseas. The majority of the cases had been treated for amoebiasis with little benefit. Table II gives the various strains isolated together with the geographical distribution.

The sigmoidoscopic appearances in the bacillary dysentery cases under review were:

(1) A generalized hyperaemia with excess of mucus.

(2) A general hyperaemia with a tubular stenosed lumen, the mucosa having a granular appearance and bleeding readily on instrumentation, which is painful. The patient passes some six to eight stools a day. The prognosis is poor in this type of case.

(3) Superficial oval or circular ulcers up to 1 cm. in diameter; the bowel wall distends readily, and there may be no inflammation

of the intervening mucosa. These lesions are particularly liable to be mistaken for those found in amoebic dysentery. One such case was encountered recently in which the appearance mimicked an amoebic ulcer so closely that it was only after two scrapings from the ulcer had been fruitlessly examined for *E. histolytica* that a third scraping was cultured and *B. flexneri VI* isolated. Hamilton Fairley and Boyd (1942) report similar cases.

TABLE II.—*Geographical Distribution of Bacillary Dysentery*

India or Burma		Egypt		Italy	
Type	No. of Cases	Type	No. of Cases	Type	No. of Cases
Shiga	1	Shiga	1	Schmitz ..	1
Schmitz ..	2	Flexner I ..	1 (Iraq)	Flexner III ..	1
Flexner I ..	7			Untyped ..	1
Flexner II ..	10	Flexner II ..	2		
Flexner III ..	2	Flexner III ..	1		
Flexner IV ..	2	Flexner VI ..	1		
Flexner V ..	3	Flexner untyped	1		
Flexner VI ..	3				
Flexner untyped	8				
Sonne	4				

(4) A puzzling appearance which is, however, characteristic of chronic bacillary dysentery and was first reported by Manson-Bahr is a pseudo-cystic condition arising from the occlusion of the crypts of Lieberkühn. The appearance suggests "sago grain" elevations varying in size from 1 to 3 mm. scattered over the mucosa; sometimes the entire mucosa is studded in this way. These "cysts" on rupture are found to contain clear or blood-stained mucus, from which the causative organism can frequently be isolated by culturing direct swabbings obtained at sigmoidoscopy. One such case was invalided from Italy with a diagnosis of multiple polyposis, but on rupture of these cysts *B. flexneri III* was isolated on culture.

Hamilton Fairley and Boyd (1942) in an admirable review of the sigmoidoscopic findings in bacillary dysentery state: "(1) In our opinion all bacillary dysentery carriers have lesions of this or a similar type somewhere in the colonic mucosa. (2) The bacilli are derived from the ulcers. (3) Once the ulcers have completely healed dysentery bacilli disappear from the stools."

Complications of Bacillary Dysentery

Complications were relatively infrequent, this undoubtedly being due to the introduction and extensive use of sulphaguanidine in all cases of severe diarrhoea overseas. Two cases showed a general narrowing of the rectum, associated with a granular, hyperaemic, easily traumatized mucosa. The prognosis in this type of case is poor, the patient being condemned to a life of semi-invalidism for many years, if not indefinitely. Two cases of arthritis of the ankle-joint developed during the course of an attack of acute bacillary dysentery overseas, complete recovery following in both cases with no residual arthritis.

Ulcerative Colitis (Idiopathic).—Seven cases were diagnosed, in six of which laboratory investigations were completely negative for bacillary dysentery and agglutinations carried out against bacillary dysentery were inconclusive. In one case both bacillary and amoebic dysentery were confirmed by laboratory findings overseas, but investigations here were fruitless. The association between bacillary dysentery and ulcerative colitis, so strongly stressed by Felsen (1945), has therefore not been found except in one case, and temperamentally this patient showed no evidence of the typical ulcerative colitis diathesis.

Hyperplastic Colitis.—Four cases were seen. The sigmoidoscopic appearances were identical, consisting of deep grevish depressions, the site of healed ulcers, surrounded by overhanging hypertrophied bridges of red mucosa giving one the impression of a rabbit warren. The mucosa bridged the depressions, and in one instance divided the lumen of the bowel into two; the remaining mucosa was unaffected and of a much paler colour than the affected part. The only symptoms were pain and bleeding following constipation, and in one case it was found necessary to divide a band of mucosa bridging the lumen of the bowel; this was carried out by Mr. Lloyd Davies, to whom I am indebted for the biopsy. The sections showed a rather hyperplastic mucosa with no evidence of inflammatory change. No pathogens were discovered in any of these cases on their return to England, but two of them were said to have had amoebiasis overseas. Three of them have been kept under observation for over a year, and, provided the bowels are regulated, they suffer no ill effects and are in perfect health Sir Philip Manson-Bahr kindly examined one case and considered it was a sequel to bacillary dysentery. Agglutinations were carried out for bacillary dysentery, and one case agglutinated *B. flexneri I* in 1/50; the other three were completely negative. It is probable that this condition is an excessive healing response to extensive ulceration—a mucosal hyperplasia analogous to keloid.

Post-dysenteric Colitis.—In 16 cases a residual colitis persisted after treatment; in only one case was it necessary to invalid the patient out of the Service. The other 15 have been kept under observation, and there has been a slow but gradual improvement in their condition; check-up sigmoidoscopies reveal a definite improvement. It is difficult, however, to convince a colon-conscious patient that improvement has occurred, despite the objective evidence of gain of weight, when the flatulent properties of a post-war carbohydrate diet produce cogent but fallacious evidence to the contrary.

Sprue Syndrome

Numerous cases have been invalided from India with a diagnosis of sprue or para-sprue. In some cases the syndrome has developed within four months of the man's arrival in India. The usual history is of an attack of non-specific enteritis shortly after disembarkation, followed by recurrent attacks of diarrhoea, bacillary or amoebic dysentery. The response to specific treatment is at first good, but the tendency to recurrent attacks of diarrhoea persists, and finally the patient notices that his stools are copious and pale and complains of a flatulent dyspepsia and intolerance to fatty foods. There is rapid loss of weight, and in many cases a soreness of the tongue develops, with or without an anaemia. A flattened low blood-sugar curve is commonly present and persists for some time after specific sprue treatment, and its return to a normal curve is a useful index of recovery.

Eighty cases invalided from India with a diagnosis of sprue or para-sprue were sigmoidoscoped and investigated on the same lines as the dysentery cases. It was found that 46% of them were harbouring pathogenic intestinal protozoa or bacteria, and that after eradication of this concomitant infection the sprue symptoms responded more readily to the routine orthodox treatment for sprue. A detailed analysis of the findings is given in Table III. It was possible to compare this

TABLE III.—*Analysis of Findings in 80 Cases with Sprue Syndrome*

Laboratory Investigations Negative	Laboratory Investigations Positive			
	E hist Positive	Lamblia	Mixed Bacillary and Amoebic	Bacillary Dysentery
43	21	7 (*E. hist.* + lamblia, 2; Flexner IV + lamblia, 1)	3 (*E. hist.* + Sonne, 1; *E. hist.* + Flexner I, 1; *E hist.* + Flexner II, 1)	6 (Flexner untyped, 1; Flexner I, 2; II, 2; V, 1)

series with a larger series of 152 similar cases investigated in other R.A.F. hospitals in England; these patients had three specimens of stools examined but were not sigmoidoscoped. The incidence of pathogenic protozoa or bacteria in the larger series was 4.5%. This marked difference in positive findings provides convincing proof of the value of sigmoidoscopy in sprue.

Summary and Conclusions

The sigmoidoscope is as necessary in the diagnosis of chronic dysentery as the microscope is in the diagnosis of chronic malaria.

The examination of three fresh stools passed in the laboratory annexe after the administration of salts appreciably increases the number of positive findings in amoebiasis.

The sigmoidoscopic appearances were normal in 20% of positive cases of amoebiasis and in 9 out of 52 cases of chronic bacillary dysentery (2 cases of the total 52 were not sigmoidoscoped before treatment).

In 16 out of 58 symptomless cyst carriers of *E. histolytica* typical lesions were seen in the rectum.

In 46% of Service personnel invalided from the Tropics with a diagnosis of sprue or para-sprue pathogenic intestinal protozoa or bacteria were isolated from sigmoidoscopic swabs.

I am indebted to the Director-General of the R.A.F. Medical Service for his permission to publish this paper; to Sir Harold Whittingham for his helpful criticism; to the numerous medical officers of the R.A.F. for their loyal co-operation; and particularly to Miss M. Sage and Sgt. A. G. Greenfield for their able assistance.

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PREVENTION OF INFANT DEATHS

LIAISON BETWEEN HOSPITALS AND HOME SERVICES

BY

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The need for ensuring the suitability of the home to which it may be necessary to discharge a premature baby has been stressed by many authorities (Hess and Lundeen, 1941; Potter, 1944; Tyson, 1944; Crosse, 1945; Ministry of Health Circular No. 20/44). To what extent disregard of this precaution (which is as important for full-term babies and those convalescing from acute illnesses as for prematures) contributes to the number of preventable infant deaths is unknown, for while investigations into the ultimate fate of prematures are not uncommon (e.g., Brockington, 1944; Asher, 1946), the follow-up of babies, full-term as well as premature, in the first year after discharge from maternity unit or hospital seems to have been neglected. A hint of what an extensive survey might show is given, however, by Collis and Majekodunmi (1943), who traced 45 premature infants that had passed through their department: 7 had died—two of these within the first month of discharge and four during the first year.

Attention was directed to this question while attempting to evaluate the efficiency of the infant health services in this area (Lewis and Blackwood, 1946). Of 31 infant deaths which were probably preventable, 7 might have been caused by discharging a baby (premature or full-term) to a household where conditions were prejudicial to the successful rearing of an infant. It has become a commonplace to speak of the importance of liaison between the hospital and the home. Like all platitudes its truth is obvious, but it happens that the attainment of really effective liaison is not as simple as would at first appear, for it raises clinical, sociological, and administrative problems that themselves have yet to be solved.

The purpose of this paper is: (i) to emphasize the need for effective liaison by describing case histories where its absence probably contributed to an infant's death; (ii) to discuss the respective points of view of the hospital and field worker and the principles underlying liaison; (iii) to suggest means by which liaison may be attained.

The Need for Liaison

The following cases illustrate the need for liaison and co-ordination of services, for in each instance death might have been attributable to lack of co-ordination.

Case Histories

Case 1.—Male, born Dec. 13, 1944, in maternity unit. One of triplets. Birth weight, 4 lb. 2 oz. (1.87 kg.). One baby died in hospital. Mother aged 26. One other child born, 1943. Normal pregnancy; W.R. negative. Hb, 66%; R.B.C., 3,700,000. Spontaneous delivery. Two surviving triplets discharged home on Jan. 10, 1945. Father (29 years old) in Forces. Home clean but overcrowded. Babies fed on breast complemented by half-cream dried milk. Lactation failed after about six weeks. The child seemed to be making good progress up to Jan. 29, 1945, but died on Feb. 8 of pulmonary congestion and bronchitis, being moribund when the doctor was called in. He thought that these babies would have been better for being retained a little longer in hospital than was the case.

Comment.—This mother had suffered from anaemia during pregnancy and had given birth to triplets. Although the home conditions were reasonably good the house was overcrowded and the mother had to cope with the two surviving triplets and the elder child of 18 months without the support of her husband, who was in the Forces. These babies should preferably have been retained in hospital until they were more firmly established.

Case 2.—Male, born Feb. 10, 1945, in maternity unit. Birth weight, 8 lb. 2 oz. (3.68 kg.). Mother aged 24; high-grade mental defective. One other female child, aged 2 years 9 months. Normal pregnancy; W.R. negative. Hb, 70%; R.B.C., 3,500,000. Spontaneous delivery. Discharged in satisfactory condition to very unsuitable home on Feb. 20, 1945. Father (31 years old) in Forces. Four people living in one small room not very clean and unfit for young baby. Breast-fed. In spite of these poor conditions the baby did well at first, but in a month or so began to deteriorate. When he was four months old he was admitted to hospital with pneumonia, and there remained for three weeks. He was discharged home, but was readmitted in a few days with an abscess of the back. He was subsequently transferred to another hospital, where he died, aged 6 months, of an abscess of the back and consolidation of the left base. He was also found to have an enlarged congenital heart.

Comment.—This baby was healthy at birth and thrived for the first few months in spite of a grossly unsatisfactory home environment. He should preferably not have been discharged to such home conditions, although it is difficult to see what the alternative could be. On discharge from hospital after pneumonia he should not immediately have been returned to the home conditions that probably had occasioned his admission.

Case 3.—Female, born July 24, 1945, in maternity unit. Birth weight, 7½ lb. (3.4 kg.). Mother aged 30. Two other children aged 10 and 3 years. Normal pregnancy. Hb, 60%; R.B.C., 3,700,000. Spontaneous delivery. Father aged 30. Family living with grandmother in council house. Home reasonably good. Mother developed breast abscess and baby then fed on one breast and complementary feeds. Discharged on 15th day and gradually went downhill. Baby readmitted to hospital on Aug. 13, 1945, where it died of marasmus on Sept. 4.

Comment.—This baby was healthy at birth and should have done well. On discharge from hospital the mother was not really fit. She had been anaemic during pregnancy and had had a breast abscess. Although the home conditions were reasonably satisfactory she had to handle two other children and a husband in someone else's home, and her mothercraft consequently was inefficient. It would have been advisable for this baby (and mother) to be retained in hospital a little longer until the mother was fit and the baby firmly established.

Case 4.—Female, born Aug. 8, 1945, in maternity unit. Illegitimate. Birth weight, 5 lb. (2.27 kg.). Mother 29 years old; works in chemical factory. Pregnancy normal, but she defaulted from the antenatal clinic from April to July. Spontaneous delivery. Discharged on 10th day. Mother and baby lived at two different addresses in the five-day interval between discharge from hospital and the death of the baby on the 15th day from bronchopneumonia. The first address was in an old, overcrowded house not very clean.

Comment.—A 5-lb. baby should with experienced care have survived, but should not have been discharged on the 10th day to unknown home conditions in the care of an inexperienced mother with no resources.

Case 5.—Male, born Aug. 8, 1945, in maternity unit. Birth weight, 5 lb. (2.27 kg.). Mother aged 26 years; first baby. Normal pregnancy; W.R. negative. Hb, 50%; R.B.C., 2,700,000. Spontaneous delivery. Discharged on 10th day. Father (aged 35) a miner. Clean home. Seen at infant welfare centre five days after discharge. General condition not good; frequent stools. On half-cream dried milk three-hourly. Readmitted to hospital on Aug. 27, 1945, where it died on Sept. 11. The family doctor stated that the mother was quite incapable of looking after the child, which was frail and difficult, and she had had no opportunity of learning to handle it.

Comment.—A baby of 5 lb. should survive with experienced care. The mother had been very anaemic during pregnancy, and on the 10th day was probably not feeling fit. She had had no experience of babies previously, and clearly the care demanded by a 5-lb. infant was beyond her capacity. The mothering it received during the first critical days after discharge from hospital was inadequate, and it never recovered from the setback it then received.

Case 6.—Female, born Aug. 18, 1945, in maternity unit. Birth weight, 5 lb. (2.27 kg.). Mother aged 35. One other boy, aged 10 years. Mother rather highly strung. Normal pregnancy, but with excessive sickness and general health not very good. Spontaneous delivery. Father (aged 36) a colliery deputy. Baby on breast and complementary feeds two-hourly. Died suddenly on day after discharge—aged 10 days. Necropsy: capillary bronchitis.

Comment.—It is at least possible that this baby was infected before discharge from hospital (although it showed no signs of this) and that it would have died in any case. But it is questionable whether a 5-lb baby should have been discharged on the 9th day in the care of a rather highly strung mother whose only other experience of child-handling was 10 years previously. If the mother and child had been retained in hospital, and arrangements made with the domiciliary services for the reception of the child at home and for instructing the mother how to handle it, it might have survived.

Case 7.—Male, born Sept. 10, 1945, in maternity unit. Birth weight, 5 lb. 4 oz. (2.38 kg.) Mother aged 22. One other child, 1 year old. Antenatal clinic attended regularly. W.R. negative. Hb, 58%; R.B.C. 3,500,000. Spontaneous delivery. Father (aged 23) a miner. Living conditions fairly satisfactory: no overcrowding. Discharged from hospital on the 9th day. Mothercraft not very good. Admitted to isolation hospital at age of 3 weeks for acute enteritis, but little abnormal found. Discharged two days later, but readmitted next day with vomiting; nothing found clinically. Died suddenly the following day. No necropsy.

Comment.—Although living conditions were reasonably good, the mother had been anaemic and her mothercraft was poor. She was incapable of caring for an immature baby as well as a child of 1 year in addition to a house and husband. The latest baby suffered. Although it would have been difficult to forecast the inadequacy of the care it actually received, it would have been better for remaining in hospital until more firmly established. When the child was admitted to the isolation hospital the diagnosis was doubtful, and an error of judgment was made in discharging it after two days. This might be understandable, but in any case it should not have been discharged to the conditions which probably brought on its illness.

Principles Underlying Successful Liaison

Clearly, the death of each one of these infants was caused, directly or indirectly, by the poor "mothering" and care it received after leaving the hospital or maternity unit. Premature infants who have done well in hospital and achieved a weight in excess of 5½ lb. (2.5 kg.) still need special attention and care. But it is not only the premature that need this care. Weakly or feeble infants, those convalescing from acute illnesses, and even those born healthy and robust will fail to thrive on leaving hospital unless the careful treatment they have been used to is maintained. It should not be overlooked that in hospital they became accustomed to expert attention, and the sudden change to the charge of a relatively inexperienced mother may be more than they can withstand. When returned to a good home with a capable and sensible mother such infants will do well. But when they enter unsatisfactory households they are exposed to a serious risk. This risk may be partly averted by making provision for the care of the mother and baby (or, where the child is older, of the baby alone) beyond the period when hospital care is strictly necessary, until the baby is firmly established or has recovered from its illness, while at the same time giving the mother an opportunity of learning how to care for and handle it.

The provision of such care is not easy. The best arrangement would be a hostel where mothers and their babies could be accommodated and where special instruction would be given in baby-care and mothercraft. A hostel on the lines described by Brodie (1946) would be suitable. For the moment this must remain an ideal, although it should have a place in the infant health services of the future. Where, therefore, such post-hospital accommodation is desirable it will usually be necessary to retain the baby in the hospital or unit. This raises difficulties, not the least of which is the availability of beds and cots. But undoubtedly the chief concern of hospital administrators and paediatricians would be the risk of cross-infection. This, of course, is a danger which would have to be faced in any *ad hoc* nursery or hostel for mothers and babies, although as many of the babies would have passed the neonatal period the danger would be rather less.

Parsons (1944) considers the risk of contracting an acute infectious illness to be much greater in an institution than in the home, and, while much will depend on the institution and much on the home, in general this dictum is unassailable. Where, then, do the interests of these infants lie? Is the potential danger of cross-infection in hospital greater than the hazard of grossly unsuitable home conditions? Whichever way lies the answer—and it is unlikely that any two cases will be similar—these dangerous alternatives must be carefully balanced. The former is a problem in hospital administration, the latter in social medicine; if infants are not to die in the no-man's-land that divides these two branches of medicine there must be the closest understanding between the hospital paediatrician and the field worker. If they are to find common ground, the one must be aware of and understand the difficulties which the other has to face and the problems which confront him. These difficulties and problems may briefly be considered.

Cross-infection in Maternity Units and Hospitals

Dealing first with cross-infection, the question most urgently needing an answer is, What are the chances of an infant becoming infected if he is retained in a children's ward or nursery? To this question, unfortunately, it is impossible to give an answer. According to a committee of the British Paediatric Association (1946), the frequency, extent, and results of cross-infection in children's wards have never been ascertained. In the absence of such knowledge perhaps the most outstanding fact to be grasped is that the onset of cross-infection may be entirely fortuitous: "In spite of overcrowding and poor hygiene, one ward may for long be without manifest cross-infection, whereas another which has every facility and is staffed by well-trained nurses may suddenly be the site of a virulent outbreak." Similarly, the seriousness of outbreaks of infection in children's wards seems to be equally unpredictable, for there is little means of foretelling how severe the infection will be. Outbreaks of so-called neonatal gastro-enteritis may have an appalling mortality, as described by Sakula (1943), when 20 out of 25 newborn infants died, and by Henderson (1943), who experienced a mortality of 69% in immature infants. An estimate of the mortality from respiratory infections is not easy, owing partly to the difficulty of diagnosing pneumonia at this early age; but undoubtedly a frank pneumonia or bronchitis would be attended by a high death rate even with modern chemotherapy. Skin infections usually take the form of a bullous impetigo, and the outbreaks described by McFarlan (1942), Benians (1943), and Nisbet (1943) were mild, causing little anxiety apart from the worry inevitably connected with staphylococcal infections in nurseries. The use of the sulphonamides and penicillin has further reduced the risk from these staphylococcal infections of the skin, and it may be that their dangers need not be exaggerated.

Adverse Home Conditions

It will be generally agreed that there is a positive correlation between a poor home environment and a high infant mortality rate. That there are specific and definable factors operating within such homes or households is certain, but there seems to be little definite knowledge as to what exactly these factors are or what is their relative significance. Ryle (1946) has drawn attention to the sociological aspect of this problem, and unquestionably its clarification is urgently needed. Reference is made below to an attempt to collect information which will do something to help in this direction. Without anticipating what will emerge from the inquiry, the preliminary findings indicate that the following are involved:

Conditions Affecting the Mother.—(1) Mental defect. (2) Low intelligence, but not amounting to mental defect—"mere feckleslness." (3) Mental or psychological abnormality of the mother. (4) Maternal inefficiency; poor mothercraft and homecraft; lack of parental responsibility. (5) Chronic or subacute ill-health. (6) The unmarried girl with no friends or resources.

Environmental Conditions.—(1) Unhygienic, insanitary, or overcrowded housing conditions. (2) Lack of equipment. (3) Poor economic circumstances; insufficient income; mother having to go out to work. (4) Large family of young children, so that the mother cannot give enough attention to the latest baby. These items can be added to, and it is usual to find several operating in a single household, where they form a vicious circle. The amelioration of such conditions is extremely difficult, and in the light of experience so far gained may even be impossible; no attempt is made to deal with them here, although the urgency is self-evident. Such households are called "observation households," and it is of paramount importance that their existence be ascertained as early in pregnancy as possible and the potential danger to the expected infant assessed (Lewis and Blackwood, 1946).

These two subjects—the danger from hospital cross-infection and the hazard of the home environment—are the main matters of immediate importance to be discussed by the hospital doctor and the medical officer of health. But if the discussion were to stop at this point liaison would fall far short of the ideal. Where there is any question of the home environment affecting the well-being of a baby the clinician must be made aware of the child's background and the necessary information must be in his hands at the earliest moment. This is important; for a real and permanent reduction in the infant mortality rate will be effected more readily by attending to the conditions under

which babies have to be reared than by studying their morbid pathology. Liaison should not be an end in itself but an integral part of the infant services, and it cannot be planned as a separate entity. Regard must be paid to these principles if liaison is to be effective.

Methods of Attaining Liaison

Through the courtesy of colleagues working in certain other areas I have had an opportunity of studying methods of attaining liaison there. In general, the usual practice seems to be for the maternity unit or hospital to inform the public health department of the impending discharge of a baby, to furnish a short report on the child, and to request, where necessary, for an early call to be made by the health visitor. It is no mere carping criticism to say that such "liaison" could hardly be effective. The clinician is quite unaware of the home environment: a child may be discharged to grossly unsatisfactory home conditions, and irretrievable damage may be done before the health visitor calls.

With these thoughts in mind a trial scheme was introduced in this area, based on the principles stated above. It would be premature to describe its detailed working or the results to date, but after five months' experience it has worked well. It involves the following matters.

(1) The unofficial reporting of pregnancies to the public health department by antenatal clinics and domiciliary midwives.

(2) Following on (1), the early investigation of the social, economic, and environmental characteristics of the families and households into which a baby is to be born.

(3) Based on (2), the ascertainment of observation households as early in pregnancy as possible and the maintenance in the public health department of a list of such households.

(4) Attempts to counteract or ameliorate the adverse conditions discovered to be present in observation households.

(5) The checking off of all birth notifications against the list of observation households, so that the birth of the baby into an observation household is known immediately it occurs.

(6) Where the birth of a baby from an observation household (observation baby) occurs in hospital, an immediate written report on the home circumstances is sent to the hospital doctor, who is thus made aware of the home background.

(7) When a baby under 1 year old is admitted to hospital for an illness the fact is reported to the public health department. If the baby is found to be from an observation household a report on the home conditions is sent to the hospital doctor.

(8) When a baby from an observation household (either born in hospital or subsequently admitted) is considered to be ready for discharge, a discussion takes place between the hospital doctor and the medical officer of health with special reference to the question of cross-infection and the adverse home environment.

This scheme, here briefly described, is not devoid of administrative difficulties, but these can be ironed out. It places the onus for initiating liaison on the public health department, where it should rightly belong, and makes the medical officer of health responsible for reporting to the hospital when the home environment is not satisfactory—a function which is properly his. The problem of effective liaison is put in its right perspective: it is not regarded as a separate entity, but is co-ordinated with the other aspects of the plan. It is hoped, moreover, by the ascertainment, investigation, and follow-up of observation families and babies to collect information which will throw light on those sociological factors known to maintain a high infant mortality rate. With the coming cleavage between the hospital and domiciliary services it will be the more necessary for liaison and co-ordination to be placed on a solid basis.

Summary

The need for close liaison between maternity units and hospital and home services, especially public health departments, is emphasized by describing case histories where lack of liaison might have resulted in an infant death.

The principles underlying effective liaison are discussed. There are households where the successful rearing of a baby is made hazardous by specified adverse environmental conditions, and in such cases it may be necessary (pending the provision of suitable *ad hoc* hostels) to retain mother and baby in hospital for a period. In such cases the risk of cross-infection must be balanced against the dangers of the home environment. In all such cases a full report on the home conditions and environment should be supplied to the hospital doctor by the medical officer of health.

A trial scheme is briefly described by which effective liaison and co-ordination may be attained as an integral part of the infant health service.

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OBSERVATIONS ON VASCULAR INJURIES

WITH SPECIAL REFERENCE TO THE VALUE OF SYMPATHECTOMY IN LIGATION OF MAIN VESSELS*

BY

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My experience of vascular injuries is limited to those cases reaching a base hospital in Egypt between October, 1942, and October, 1945, consisting principally of aneurysms. A few recent injuries of blood vessels due to local shooting and stabbing affrays were admitted, and there were a few secondary haemorrhages requiring ligature of main vessels.

Altogether 41 main arteries were ligated. With one exception every case was submitted to sympathectomy 14 days before or at the time of operation on the artery. Prof. Paterson Ross, at Hill End Hospital, for one reason or another ligated 15 main vessels, also preceded by sympathectomy. It is with the results of ligature of primary arteries that I wish to deal here. The solitary point I hope to make is that ligature of a main vessel should be accompanied by sympathetic denervation of the limb. Ligature of the main artery of a limb carries with it a considerable risk of gangrene. This is especially so in gunshot wounds because, as a rule, many collateral vessels are injured at the same time. Sir George Makins collected a series in the war of 1914–18 in which the primary artery had been ligated and the fate of the limb left to the collateral blood flow. The percentages of cases complicated by gangrene according to arteries involved were as follows:

TABLE I

Subclavian	.. ..	25%	Femoral	.. ..	25%
Axillary	.. ..	16·6%	Popliteal	.. ..	41·6%
Brachial	.. ..	23%			

Averaging these cases, gangrene occurred in 26%. The popliteal artery is especially dangerous. Most surgeons would agree that ligation carries a risk of at least 40%, and many would assess the risk considerably higher. Apart from frank gangrene, depleted blood flow leads to ischaemic necrosis of muscles with crippling contractures, fibrosis, wasting of muscles, and nerve palsies. Even if these grosser manifestations are not seen, inadequate blood supply to the muscles is revealed in the lower extremities by intermittent claudication. The fate of the limb after ligation depends on the collateral circulation. Every effort must be made to expand it quickly. Blood pressure must be maintained by transfusion. The limb should be kept below the level of the heart by blocks under the head of the bed. The affected limb should be kept cool and the rest of the body warm to aid sympathetic release. The surest method of

* A short paper read before the Association of Surgeons of Great Britain and Ireland, May, 1946.

dilatation of the collateral circulation is by sympathectomy. It has been practised in America for many years. Gage and Ochsner (1940) have carried out sympathetic block in all cases of traumatic injuries to blood vessels, and in operations for aneurysm since 1930, without the occurrence of a single case of gangrene. British surgeons seem to be suspicious of sympathectomy largely because of the inability of physiologists to reconcile this procedure with the results of their researches on the experimental cat and dog. It has become the fashion to doubt the value of operations on the sympathetic nervous system. It has been stated that stimulation of the sympathetic leads to vasoconstriction in the skin but increased blood flow to the muscles, sympathetic block to increased blood flow to the skin but reduced flow to muscles. The points were stressed in a paper by Siddons (1945) condemning sympathetic block. There are, however, certain solid facts in favour of the value of sympathectomy: (1) In spite of the deductions of the laboratory worker in the experimental animal it is well known clinically that sympathectomy will improve intermittent claudication; (2) Theis (1933) has shown convincingly in animal experiments that sympathectomy increases the total in-flow to a limb and increases the collateral circulation after ligation of a main vessel. Barcroft and Edholm (1943) have shown that there are vasoconstrictor fibres to the blood vessels supplying muscles in man. There is, in fact, a weight of clinical and also some experimental evidence that sympathetic denervation improves the circulation to the whole limb—muscle as well as skin. Three cases of main-vessel ligation in forward areas without gangrene but with severe claudication were admitted to hospital: one patient with common iliac ligation, able to walk only 10 yards (9 m.) without cramp, one popliteal and one femoral ligation, all "claudicating" under 100 yards (90 m.). They were submitted to lumbar ganglionectomy and were able to walk half a mile (0.8 km.) on leaving hospital. I have ligated 41 main vessels. In 40 of them a sympathectomy was carried out either at the time of ligature or a fortnight before; most of them were not simple ligations but excisions of long segments. Twice I have performed triple ligation with excision of the common femoral, superficial, and deep femoral arteries. Next day, in both cases, the foot on that side was appreciably warmer than the other. The popliteal artery has been ligated and portions excised at all levels in its length. In this series there was one example of gangrene following excision of an arterio-venous aneurysm at the adductor opening. This man, an Italian P.O.W., had multiple wounds round the knee; many of the collateral vessels had been divided. Clinically the peripheral circulation in both legs was very poor. In the only case not submitted to sympathectomy in this series ischaemic necrosis of the forearm muscles occurred.

TABLE II.—*Ligation of Main Arteries*

External iliac	9	Subclavian	4
Common femoral	4	Axillary	4
Superficial femoral	6	Brachial	5
Popliteal	9		

Traumatic False Aneurysm

Our experience of this condition is limited to 15 cases. It is usually stated that operation should be delayed for three months in order that a good collateral circulation may form. While this policy may be sound, it seldom seems possible. In my series 13 out of 15 had to be operated upon before the optimum time because of external haemorrhage, progressive enlargement with threat of rupture, nerve compression, and in one case infection. Other surgeons have had similar experiences. I rather doubt the soundness of the policy of waiting for a collateral circulation to develop. A few arteriographs of aneurysms that I have made have not shown the characteristic tortuous vessels that are usually seen in arteriographs of main-vessel thromboses. The hypertrophied vessels that do form seem to be around and in connexion with the sac, and are of necessity injured during operation. In two cases operation had to be carried out as an emergency for external haemorrhage between the second and fourth weeks while the aneurysm was only just out of the pulsating arterial haematoma stage. I was much impressed by the ease of operation. Soft clot was mopped away and the vessel could be easily identified and tied through the floor of the sac. Owing to the extreme difficulty of operation between the fourth and tenth weeks, and the fact that the surgeon's hand is so often forced by complications to operate during this difficult period, I am persuaded that to operate upon them between the second and fourth weeks is preferable to waiting until a later date. I do not believe that the increased collateral circulation is worth waiting for. Relief of tension by operation combined with vasodilatation by sympathectomy should be adequate.

TABLE III

Common femoral	3	Subclavian	2
Superficial femoral	2	Axillary	2
Popliteal	3	Brachial	3

Arterio-venous Aneurysms

I have operated on 13 arterio-venous aneurysms of the limbs. I have only one observation to make about the diagnosis, and that is the extreme difficulty in deciding before exploration what vessels are involved. Complications necessitating early operation are unlikely to occur in arterio-venous aneurysms, and therefore it is possible to wait six months or longer before exploration. A quadruple ligation accompanied by sympathectomy was the routine procedure, with excision of the sac where possible without damage to neighbouring structures. In one case of arterio-venous aneurysm of the first part of the right subclavian sympathectomy was impossible owing to dense adhesions around the apex of the lung. Ischaemic contracture of the forearm muscles occurred.

TABLE IV

Common femoral	2	Subclavian	2
Superficial femoral	3	Axillary	2
Popliteal	3	Brachial	1

Late Results

Out of Prof. Ross's 14 cases in which leg arteries had been tied with sympathectomy 11 have been seen again more than six months after operation. In all cases nutrition of the limb was excellent. The patients could all walk at an ordinary pace for three miles (4.8 km.) without claudication. Four complained of claudication if they walked fast. In assessing the late results insufficient attention has been paid to disability following ligation of a main vein (Ross, 1946), the symptoms of which have sometimes been misinterpreted as the result of arterial ligation.

Conclusions

If operation is planned for ligature of a main artery sympathectomy should be carried out.

If ligation is carried out in an emergency, sympathectomy should be done at the same time or as soon as possible afterwards.

In traumatic false aneurysm operation should be performed two to four weeks after injury, accompanied by sympathectomy

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The population increase of the Middle East is touched on by PEP in their recently issued pamphlet *Basic Problems in the Middle East*. Famine, war, and disease have for long been the most important limiting factors; in addition scarcity of water prevents habitation of many areas. Improved systems of cultivation, the introduction of forestry in Cyprus, and the setting up of industries all contribute to raising the standard of living; but between the beginning of this advancement and the point where raised cultural standards themselves limit population growth there may be a long period of overcrowding and all the suffering that ensues from it. That the problem is not insuperable seems indicated by the experience of Japan, where the population has greatly increased in recent decades without an appreciable depression of living standards. On the other hand the situation in India is grave indeed, as Sir John Megaw pointed out in a letter to this *Journal* on June 29, 1946. Detailed population studies are required for all these countries. In Sudan, for example, traditional methods of estimating the population have given figures that in some areas may be 50% inaccurate.

A CASE OF PRIMARY AGRANULOCYTIC ANGINA

BY

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AND

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In view of its comparative rarity, we feel that it is worth while reporting the following case, which was treated by continuous intramuscular drip pentose nucleotide and oral sodium nucleinate.

Case Record

A married fitter aged 30 was first admitted to hospital on May 27, 1943, with a history of pains in the knees, ankles, and the left elbow, wrist, and fingers of five days' duration. He was a moderate drinker and smoker. The previous history included an attack of rheumatic fever at the age of 7.

On examination his temperature was 100° F. (37.8° C.), pulse 80, respiration 22. He looked pale, but had no other gross physical signs. The urine was normal; the blood sedimentation rate was 78 mm. in one hour. He was thought to be suffering from acute rheumatism, and was given salicylates, with little or no effect. On June 1 an ulcer of the gum was noted, and three days later several more had appeared, with a lymphadenitis of the deep cervical glands. The white cell count was 2,400 per c.mm. (neutrophil polymorphs 17%, lymphocytes 69%, and monocytes 14%). Haemoglobin and red cell count were normal. He was given 10 ml. of pentose nucleotide daily for three days, after which the white cell count remained the same, but the neutrophils had risen to 28% and there were 2% myelocytes. On June 11 he was feeling better, the ulcers had gone, and he was afebrile, but the white cells had dropped to 1,900 per c.mm. (neutrophils 22%, lymphocytes 69%, monocytes 9%). Pentose nucleotide, 60 ml. daily, was given for three days, and on the last day he was transfused with a pint of Group B whole blood, three days old. On June 14 there was no change in his total white cell count, and a marrow puncture gave the following result:

Cell Type	%	Range of Normal Values (%)
Pro-erythroblasts	4·0	0– 4
Erythroblasts	16·5	2– 7
Normoblasts	1·0	7–19
Mature polymorphs	13·5	20–50
Basophils	0·5	0– 1
Eosinophils	1·0	0– 4
Myeloblasts	6·0	0– 2·5
Myelocytes	11·0	2– 9
Other immature polymorphs (metamyelocytes)	36·5	2·5–14·5
Lymphocytes	10·0	5–20

The patient was anxious to go home and was discharged. The last white cell count was 2,750 per c.mm., neutrophils 17%.

On March 2, 1944, after nine months at home, he was re-admitted with similar symptoms and signs. He was again discharged after being given low doses of pentose nucleotide, the white cell count showing no gross change. He was again admitted on July 14 with a severe recrudescence of symptoms, especially the joint pains. The white cell count was 3,150 per c.mm., neutrophils 46%. At the suggestion of one of our colleagues (Dr. Marchment) a continuous intramuscular drip containing 40 ml. of pentose nucleotide in 540 ml. of normal saline was given into the vastus externus at the rate of ten drops a minute, and was continued for three days, 120 ml. of pentose nucleotide being given in all. A white cell count then showed a total of 6,700 per c.mm.; the nucleotide was, however, continued by the intermittent method, 10 ml. being given intramuscularly twice daily for three days, and 5 ml. twice daily for a further three days, but the count remained the same. A further 5 ml. once daily for three more days was ordered, and on the completion of this course the white cells numbered 9,500 per c.mm.

Further investigation showed that the haemoglobin percentage, red blood cell count, and platelet count were normal, having remained so throughout his illness. A fractional test meal revealed low acidity, with some delay in emptying of stomach. Biopsy of an axillary lymph gland showed marked reactive hyperplasia of lymph germ-centres and reticulo-syncytium.

Between July 31 and his discharge on Aug. 12 no further nucleotide was given, but the white cell count remained around 6,500 per c.mm. On the analogy of the replacement therapy of Addison's anaemia, sodium nucleinate in doses of 1 to 2 dr. (4–8 g.) daily was given, and in the subsequent follow-up at the out-patient department no significant change in the count was noted after ten months. The oral nucleinate was therefore stopped, and up to the time of writing the count has remained within normal limits.

Discussion

Speculation has been rife on the aetiology of this disease, and many theories have been put forward. Rutledge *et al.* (1930) believe that the condition is a primary disease of the myeloid tissue of the marrow and that the necrotic ulcerations are produced as a result of the neutropenia allowing of bacterial invasion. Osgood *et al.* (1939) quote the normal white cell differential count as follows:

Cell Type	No.	Range %
Neutrophil	1,500–7,500	15–75
Eosinophil	0– 400	0– 4
Basophil	0– 200	0– 2
Lymphocyte	1,000–4,500	10–45
Monocyte	0– 800	0– 8

When our own case was first suspected on June 4, 1943, the patient had 408 neutrophil polymorphs per c.mm. of blood, and the marrow film count, on June 14, 1943, showed a clear majority of young immature cells of the prematuration series, suggesting the maturation rather than the aplastic type of the disease. His relapses in March and July, 1944, suggest a critical level of 1,500 neutrophil polymorphs per c.mm. below which symptoms and signs are observed. Of course, this critical level below which stomal ulceration may occur, possibly varies from patient to patient. The following case is an example.

A boy aged 10 was admitted with ulcers on the buccal mucosa. The white cell count was 4,600 per c.mm., of which 59% (2,750) were polymorphs and 38% lymphocytes. He had had 12 g. of sulphathiazole. Was he suffering from sulphonamide granulocytopenia with a critical level above that of the other case? Whitby maintains that the polymorph counts in children approach the adult level one week after birth. Within eleven days this child's white blood cell count had risen to 9,000 per c.mm., of which 50% (4,500) were polymorphs.

The stimulus which causes granulocytes to enter the circulation is said to be nucleic acid and its derivatives, though its role in maturation is uncertain. Again, pentose nucleotide is said to be useful in both primary and secondary granulocytopenia, the usual method being by daily intermittent intramuscular injections; but though our patient had 105 ml. by this technique his white cell count only slowly improved. A transfusion of a pint of blood made no appreciable difference. However, the value of blood transfusion in these cases is disputed, the only effect, theoretically, being to add nucleotide to the patient's blood by the breakdown of donor leucocytes. Whitby and Britton (1944) state that the total white cell count may actually be lowered as a result of transfusion. It occurred to us that failure may have been due to too rapid destruction of the nucleotide or the overstimulation of the marrow by one massive dose. We therefore thought that a continuous intramuscular drip transfusion, of a total of 120 ml. of nucleotide in saline, at the usual rate of ten drops a minute might be better. The total white cell count rose in three days from 3,150 to 6,700 per c.mm. at a much greater rate than that obtained with the intermittent injections of 105 ml. of nucleotide for a further nine days.

The question remaining unsolved was whether he might recover in any case (as these cases sometimes do). On Jan. 1, 1946, after he had been ten months off sodium nucleinate, his white cell count was 6,400 per c.mm. This would seem to indicate a spontaneous recovery and the uselessness of the oral nucleinate, possibly because, unlike the haemopoietic principle, it never reached the marrow in an unmodified state, it being thoroughly digested in the gut beforehand. Glutathione and liver extract were never given, as the rationale of their use is doubtful, though the haemopoietic principle in the latter has some influence on white cell maturation. The patient gave only a five-day history when first seen, though whether this was really the first attack of his present malady is, of course, debatable. Finally, though neutrophil granulocytes were always present—i.e., the condition was a granulocytopenia rather than an agranulocytosis—we labelled it primary agranulocytosis, as most authorities, such as Wintrobe (1942), Whitby, etc., consider it the term best fitted to cover what is, after all, a very heterogeneous group.

Summary

A case of primary agranulocytosis in a man aged 30 is described, together with a method of treatment by continuous intramuscular drip pentose nucleotide. That recovery was probably spontaneous is discussed in the light of possible treatments.

Our thanks are due to Dr. A. T. Johns, pathologist, City Hospital, Nottingham, for permission to use the haematological findings.

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THE EFFECT OF *d*-TUBOCURARINE CHLORIDE ON SENSATION IN MAN

BY

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AND

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Curare is being increasingly used as an adjunct to anaesthesia. It has been employed widely in America as a biologically standardized extract of curare known as "intocostrin," prepared by E. R. Squibb and Sons. It is being used in this country as the active principle isolated by Harold King (1935), *d*-tubocurarine chloride, and is sold as "tubarine."

There seems to be a belief that curare itself has some central depressant action and may thus contribute an analgesic or anaesthetic action of its own when used in anaesthesia. Theoretically this might be possible, as curare is known to block the effect of acetylcholine at ganglia and at the neuromuscular junction; and recent work (Bülbring and Burn, 1941) suggests that acetylcholine is concerned in transmission in the central nervous system. However, experimental evidence on the effect of curare on the central nervous system is confusing.

Von Euler and Wahlund (1941) confirmed earlier reports of an initial central stimulant action on the vasomotor and respiratory centres after intracisternal injection of curare; prolonged action of larger doses caused paralysis of these centres. Intralumbar injection of curare had a strychnine-like effect on spinal reflex excitability. Fegler (1942) showed an initial stimulation of respiration due to curare in anaesthetized dogs, and this may have been central. Other workers (Kahlson and Peil, 1937, in rabbits, for example) obtained respiratory depression. A narcotic effect of curare was reported by Feitelberg and Pick (1942), who performed electroencephalography on frogs. Pick and Unna (1945) later showed that there were separate central and peripheral actions, the former being present when the frog could still jump. Ranyard West (Hartridge and West, 1931; West, 1935) claimed that curare has a "lissive" or rigidity-removing action on dogs in tetany by virtue of a central effect, since this action precedes paralysis of the animal. He also reports respiratory depression appearing before paralysis of the respiratory muscles.

Unconsciousness following the administration of curare to man is described by Whitacre and Fisher (1945), who claim that there was no clinical evidence of hypoxia in these patients, and that there was no period of analgesia preceding the sudden loss of consciousness and muscular paralysis. The two patients described were, however, exsanguinated and shocked. In a third patient, a 72-year-old woman, resection of the colon was performed, using premedication and 405 mg. of "intocostrin." The patient was unconscious throughout. In two other patients curare in doses causing marked respiratory paralysis had no analgesic activity, the patients saying later that the pain was unbearable until cyclopropane was administered. Griffith (1945) mentions these results and concludes that, at least in safe doses, "curare is in no sense an anaesthetic agent." Prescott, Organe, and Rowbotham (1946) made the same observation. Five minutes after the injection of 30 mg. of *d*-tubocurarine chloride the subject was just beginning to lose consciousness. At this time respiratory exchange was inadequate; the "resultant asphyxia was masked by the fact that the subject was breathing pure oxygen." They further report no analgesic action with this dose.

Other workers have claimed that curare enhances the narcotic effect of other drugs (Brody, 1945; Gray and Halton, 1946). Cullen (1944) and Gross and Cullen (1943) point out that ether, "avertin," and sodium thiopentone ("pentothal") have a curare-like action of their own, and this action may explain some of the supposed synergisms.

We have therefore obtained some information on a possible analgesic action of curarine (*d*-tubocurarine chloride, Burroughs Wellcome and Co.) given intravenously in doses which, though small (5 and 7.5 mg.), did cause noticeable weakness of the muscles of the eyes, face, and jaw, and, to a less degree, those of the neck and arms. The effect of each dose has been observed in two men each weighing 10 st. (63.5 kg.). Sensation and cerebration were tested before injection, five minutes later at the height of muscular weakness, and again at fifteen minutes after injection during recovery.

Sensation was tested as follows: touch, with von Frey's hair (0.5 g.); skin pain, with two needles mounted on von Frey's hairs, the heavier giving immediate pain with each prick and the lighter giving no immediate pain but only a delayed sting; deep pain, by pressure over the subcutaneous surface of the tibia with an analgesiometer, the reading in pounds pressure at which pain was felt being noted. Cerebration was tested by mental arithmetic and by the ability to repeat sentences read out by an observer.

After curarine no sensory changes could be detected by these simple tests. The pain threshold was unaltered—15 lb. (6.8 kg.) as against 13 lb. (5.9 kg.) before injection. Cerebration was also unimpaired. For an evaluation of the method the tests were later repeated on each subject after intravenous injection of morphine 1/6 gr. (11 mg.). This produced a definite rise in pain threshold, the analgesiometer readings rising from an average of 12 lb. to 24 lb. (5.4 to 10.8 kg.), and the response to the lightly mounted needle was much diminished, the sting alone being felt in one out of three pricks.

It appears, then, that in these doses *d*-tubocurarine chloride has no analgesic action, even at the height of muscular weakness.

The investigation was suggested by Prof. J. H. Burn, and was carried out at the Wingfield-Morris Orthopaedic Hospital with the kind permission of Prof. H. J. Seddon.

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The campaign for wholesale immunization against diphtheria in Sweden was started in 1940, and in the period 1942-5 some two million doses were issued by the State bacteriological laboratory for this purpose. During the years between the two world wars, the incidence of diphtheria in Sweden was low, reaching a record low level in 1938 of only 107 cases. This comparative immunity has entailed a high and growing rate of non-immunes in the community, and in 1943 only 6.4% of 1,000 of Stockholm school-children were Schick-negative, but over 98% of school-children on receiving one dose became Schick-negative from being Schick-positive. Swedish practice now employs a single injection which, it is recognized, needs to be repeated after one and five years. The brevity of the immunity conferred by a single injection is emphasized by the observation that, a year and a half after a first injection, 57% of 600 children had in the interval again become Schick-positive while the remainder were still Schick-negative.

Medical Memoranda

Calcification of the Thyroid Gland

The following case of calcification of the thyroid is interesting enough to warrant its recording. Few such cases have hitherto been published. According to a survey of the literature, cases of calcification of adenoma of the thyroid have been reported by Bunch (1939), Rambo and Levi (1930), and Pennell (1917). J. J. Clark recorded an instance of calcification of the thyroid (1920).

The case below described is an example of calcification of the right lobe of the thyroid. The stone on removal was conical in shape, with three surfaces, three borders, apex, and base. It measured 2 in. (5 cm.) from base to apex, and was 1 in. (2.5 cm.) thick. It weighed 23 g. when dried. Having made careful search without avail for the remains of thyroid tissue after removal of the stone, and on comparing its shape with the anatomical description of a thyroid lobe, I think the above assumption is justified.

HISTORY OF CASE

A spinster of 76 was admitted to Tyrone County Hospital complaining of pain in the epigastrium with loss of appetite and energy. Investigation revealed a moderate degree of hyperacidity but no evidence of gastric neoplasm. Her blood picture suggested a megalocytic anaemia. About ten days after admission she complained of difficulty in swallowing and also of an obvious hoarseness. On further questioning she stated that her voice had been getting weak for the past six months, but never so bad as at present. Examination revealed a hard craggy mass in the region occupied by the right lobe of the thyroid gland. The mass moved freely on deglutition and on palpation. There was a slight parenchymatous enlargement of the left lobe. A diagnosis of thyroid stone pressing on the recurrent laryngeal nerve was made, and later confirmed by screening and *x*-ray examination. Operation was advised and carried out through a collar incision under local analgesia. The stone was enclosed in a thin fibrous capsule, from which it was easily removed after cutting some adhesions between it and the ala of the thyroid cartilage. The left lobe was enlarged but was not interfered with.

The patient made an uneventful recovery. The hoarseness subsided after a week or ten days, and she no longer complained of dysphagia. The acute severity of the hoarseness which the patient experienced after admission was thought to be due to her recumbent position, in which the recurrent laryngeal nerve was probably subjected to more direct pressure from the stone.

I am grateful to Mr. A. A. Eaton for permission to treat and publish this case.

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Penicillin in the Treatment of Thiouracil Agranulocytosis

The following report of a case of agranulocytosis occurring during thiouracil therapy is of interest in view of the excellent response to early treatment with penicillin.

CASE REPORT

A woman aged 59 was admitted to hospital on April 1, 1946, with a moderate degree of thyrotoxicosis. Treatment with 0.6 g. of methyl thiouracil daily was started on the 5th. The thyrotoxic condition improved, and on the 23rd the dosage of methyl thiouracil was reduced to 0.4 g. daily. During the period of treatment the white blood cell count ranged between 4,000 and 7,000 per c.mm., with neutrophils between 65 and 72%.

On May 1 there was a purulent discharge from the right ear, but no pyrexia or constitutional disturbance. She had a history of chronic otorrhoea. The dosage of methyl thiouracil was reduced to 0.2 g. daily on May 2. Next day the white cell count was 3,000, and at 11 a.m. on the 4th it was 1,900, neutrophils 4%. Methyl thiouracil was stopped immediately, a total dosage of 14.8 g. having been given. Penicillin therapy was started at once, with 20,000 units three-hourly. In addition, 4 ml. of liver extract was given daily for three days. On the evening of the 4th there was a rise of temperature to 102° F. (38.9° C.), but the patient was fairly comfortable. Next day the temperature was 100° F. (37.8° C.) and the white cell count 1,800, neutrophils 5%. On the 7th the temperature was 99° F. (37.2° C.) and the white cell count 1,800, neutrophils 12%, with a shift to the left noted. The patient felt well. The temperature was normal the next day and the white cell count was 3,000, neutrophils 37%. Penicillin therapy was discontinued on the 10th, and on the 14th the white cell count was 8,200, neutrophils 69%.

Agranulocytosis may occur as a serious complication during treatment with methyl thiouracil. Reports in the American literature of the success of penicillin in this condition prompted its use in this case. It would seem that penicillin is a most convenient form of therapy for agranulocytosis.

I wish to thank Dr. D. A. Williams for permission to publish this case.

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Reconstituted Plasma Used in an Epidemic of Measles

During the repatriation of ex-internees in a crowded ship from China three cases of measles were discovered. More than half the 202 children had never had measles, and no convalescent serum was available. In an attempt to modify the course of the disease, which was almost certain to spread, it was decided to try the effect of reconstituted plasma by injection.

The dried plasma had been kept at least five months in the Tropics. It was made up to normal strength. The dosage chosen was 10 ml. intramuscularly, and 112 injections were given. As was to be expected, the number of patients fluctuated daily; the majority were seen about 9 to 12 days after the first nineteen cases, and the rest a further 7 to 14 days later. Early in the epidemic isolation became impracticable and was discontinued.

The earlier cases, appearing soon after the injection, were severe; temperatures were high, varying from 102° to 104° F. (38.9° to 40° C.) continuously for 3 to 4 days; Koplik's spots were usually present, and were extensive in distribution. In the later cases the clinical picture had been modified. Pyrexia was mild, Koplik's spots were not so extensive, and the rash in many cases was hardly perceptible. Severe attacks occurred in two children and six adults who had not had an injection; three inoculated cases also had severe attacks. In the remaining cases there was a greater variation in the severity of the disease; the majority, however, had a modified form. Koplik's spots were usually present for four to five days before a mild rash appeared, whereas in the severe cases the time taken was two days. One boy had a severe attack, developing petechiae on arms, legs, and trunk, which faded leaving a coppery staining; he had not been injected.

One case only became complicated, a patient who had received a plasma injection developing acute otitis media at the end of the voyage when the average noon temperature had fallen to 35° F. (1.7° C.). Every patient developing a temperature over 100° F. (37.8° C.) was treated with sulphathiazole by mouth, the daily dosage varying from 3 g. in a 4-year-old child to 6 g. in an adult. During the epidemic 121 cases of measles were seen. Collection of clinical data was difficult under conditions of shortage of staff in a ship where the space and facilities for medical work were limited.

DISCUSSION

Excluding the early ones, there were only three severe cases from the remaining 90 who had received the injection. This fact, and the observation that the attacks were severe in those not inoculated, suggest that the plasma was effective in modifying the course of the measles.

McGuinness *et al.* (1943) showed the efficacy of dried plasma, whereas Stokes *et al.* (1944), Ordman *et al.* (1944), and Greenberg *et al.* (1944) reported excellent results using the gamma-globulin fraction obtained from human plasma. These workers, who used concentrated doses, commented on the low incidence of serum reactions. In the present series only one case of mild serum sickness was seen in the 112 children injected.

Under the crowded conditions and in a relatively unprotected community it was expected that the measles would be severe and complicated. That this was not so is thought to be due to the modifying effect of the plasma, the administration of sulphathiazole, and the ideal weather encountered in all but the latter part of the voyage.

On clinical evidence it was concluded that reconstituted pooled plasma is effective in modifying measles. It was shown that the dried plasma is effective after storage in the Tropics and can be readily made up when required.

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Reviews

BIOLOGICAL EFFECTS OF RADIATION

Actions of Radiations on Living Cells. By D. E. Lea, M.A., Ph.D. (Pp. 402; illustrated. 21s.) Cambridge: The University Press. 1946.

Since the first use of radiation as a means of producing biological effects, both desirable and undesirable, there has been only a limited body of information available by which the worker with radiation could attempt to explain or understand its action. In this clearly written and thought-out work the author surveys the hitherto uncharted field of the immediate effects of radiation. Moreover he publishes charts which enable the serious worker to continue the exploration for himself.

Remembering that Lea has concerned himself with effects on visible structures on which experimental evidence is available and has only skirted the swamps of conjecture surrounding the more diffuse effects of radiation, we must admit that he has succeeded admirably in his aim. He starts by discussing the radiation and its physical properties, providing figures which must have required prodigious work to collect, and which form a basis for the detailed understanding necessary for all research workers in the subject. He goes on to discuss the chemical effects of radiation in an essentially quantitative way, based on the physical properties of the radiation and the ions which they produce and their relation to the aqueous medium in which their energy is absorbed. He then deals with the target hypothesis and its limitations. He considers its validity "unquestionable in the case of the inactivation of small viruses by radiation and the production of certain chromosome aberrations in higher cells," and "highly probable in the killing of larger viruses and bacteria and the production of gene mutations." He states that it is inapplicable to changes brought about by circulating blood or intra- or extracellular fluids affected by the radiation.

Lea specifies three types of investigation necessary to determine the applicability of the target theory to any given biological action—viz., the relation to dose, to dosage rate, and to the nature of the radiation—and lays down three corresponding criteria—viz., the survival curve is exponential, the effect is independent of dose rate, and the effect of gamma rays, hard *x* rays, soft *x* rays, neutrons, and alpha rays for a given dose decreases in that order. He provides graphs and figures which enable the investigator rapidly to determine target size from his own experimental results, and in subsequent chapters applies his criteria with such effect as to prove to our satisfaction that his statements quoted above are a true estimate of the position. The discussion of the effects of radiation on chromosomes is given in great detail.

No worker in the field of radiation should remain unacquainted with the contents of this book, though for the medically trained the physical and mathematical aspects may be too advanced for complete understanding. There is no doubt that this work is a masterpiece of clear and original thought applied to a most intricate subject, and that it will be considered in time as a classic work. It is to be hoped that Lea will bring the same power and energy to producing a similar work on other aspects of radiobiology hitherto unexplained. Explanation of the action of radiation brings us nearer to an understanding of the fundamentals of life.

PSYCHOLOGICAL TESTS

Manual of Diagnostic Psychological Testing. II. Diagnostic Testing of Personality and Ideational Content. Review Series Volume III. No. 1. By David Rapaport, Ph.D., and Ray Schafer, B.S., with the collaboration of Merton Gill, M.D. (Pp. 100; illustrated. $0.75). New York: Josiah Macy, jun., Foundation.

This is the second part of a survey of psychological tests and is concerned with a review of the word association, Rorschach, and thematic association tests. These are tests of personality, of the way in which the subject approaches problems and the underlying impulses and conflicts which determine such approach. Each test is described in detail and its purposes are discussed. The methods of administration are described and the pitfalls in interpretation recorded. The results are then set out in various groups such as schizophrenics, depressives, neurotics, and normals.

The authors point out how the same sort of tendencies may be recognized through a series of tests, and make a plea for the use of a battery of tests instead of relying on single tests. They claim that it is possible in this way to distinguish between psychotics and neurotics and normals with a fair degree of certainty and, with sufficient care and variety of test, between preschizophrenics, depressives, and paranoids. It is obvious that if the promise of such distinctions can be maintained and extended it will have most important repercussions on medicine, especially in its preventive aspects, on vocational guidance, and in many other branches of social science. The present volume therefore merits close attention as a record of what has already been achieved and as a stimulus to further work.

DISORDERS OF INNERVATION OF PHARYNX, LARYNX, AND OESOPHAGUS

Les Troubles de L'Innervation Pharyngo-Laryngée et Oesophagienne. By Prof. F. J. Collet. (Pp. 320; 22 figures. 300 francs.) Paris: Masson et Cie 1946.

The innervation of the pharynx, larynx, and oesophagus, though well understood in broad outline, has always given rise to perplexities and apparently paradoxical phenomena in matters of detail, which have at times been the grounds of heated dispute. Prof. Collet in his recently published book on the disorders of innervation of the pharynx, larynx, and oesophagus gives in great detail the fruits of half a century of careful observation and profound study of these questions. If he has nothing original to say he at least presents these questions in full detail to the reader and avoids that over-simplification which is often thought sufficient but provides a very imperfect understanding of the subject. Clinical studies and case reports naturally figure largely in such a review, and the author is still inclined to rely rather on a description of syndromes than to elucidate the underlying processes or lesions which cause the syndromes. He therefore dismisses rather lightly the plea made by Burger some ten years ago for the abolition of eponymous syndromes and the substitution for them of a system of groups of paralyses at different levels based on a rigidly scientific anatomical localization. The eponymous syndromes have in fact of themselves no anatomical basis, with the exception of that of Tapia and possibly of Avellis, and are modifications of the group of associated paralyses originally described by Hughlings Jackson; and they have the further disadvantage that the different varieties are difficult to remember by their authors' names. This comment is made in order to illustrate the conservative attitude of Prof. Collet to his subject, but he has omitted no detail in his description, and, as the borderland of neurology and laryngology is the territory concerned, his book is of interest to specialists in those branches as well as to those who practise general medicine.

SURGERY FOR DENTAL STUDENTS

Essentials of Surgery for Dental Students. By J. Cosbie Ross, M.B., Ch.M., F.R.C.S. (Pp. 284; illustrated. 20s.) Edinburgh: E. and S. Livingstone.

The curriculum for the dental student requires that he shall have some knowledge of general surgery and especially of that of the head and neck. To gain this from study of the medical student's textbook of surgery is a very unsatisfactory method of procedure, not only on account of the difficulties of picking out the essential parts but also because the detailed description often goes far beyond that which the dental student wants. The need therefore arises for a smaller textbook dealing with those aspects of surgery which are of interest to the dentist in just such detail as he requires. This need appears to be adequately met in Mr. Cosbie Ross's *Essentials of Surgery for Dental Students.* The author, who is lecturer to dental students in the University of Liverpool, is evidently very well acquainted with the type of teaching which the dental student appreciates. The whole of the matter is of course quite orthodox, but it is clearly laid out with appropriate headings in heavier type. The illustrations deserve special praise—they are exceptionally good, much to the point, and the reproduction is perfect; as the author says in his preface, "In the confident belief that one

good diagram is of more value to the student than pages of print, I have attempted to illustrate all important diseases." We feel sure this book will become very popular among dental students; it is excellently produced by the publishers.

CARE OF PATIENTS WITH VENEREAL DISEASE

Public Health Nursing in Syphilis and Gonorrhoea. By Evangeline Hall Morris. (Pp. 240. 12s.). London: W. B. Saunders Company. 1946.

The title of this book may seem a little strange to the British reader since we have no one in this country who corresponds exactly to the American public health nurse; perhaps "the nursing and welfare of patients suffering from venereal disease" would describe its contents more effectively. The book starts with some account of the problem as it presents itself in the U.S.A. and goes on to relate the history and describe the signs and symptoms, diagnosis, and treatment of the two main venereal diseases; there follow chapters on the patient's needs, epidemiology, the organization of V.D. clinics, a description of the various agencies which deal with the problem, education of the individual at various ages, and finally an account of the duties of the public health nurse.

The clinical sections contain all that a nurse or nursing orderly need know about V.D., though it is news to be told that the gonococcus is anaerobic; most readers will be more interested in the later chapters, particularly those on sex education and the duties of the nurse. The author evidently knows what she is talking about, and those who were privileged to see American public health nurses at work in England during the war were greatly impressed with both their methods and the results they obtained.

All who have to deal with the V.D. patient and his problems, whether doctors, nurses, almoners, or social service workers, will profit from a study of this excellently produced little book.

A SURGEON'S AUTOBIOGRAPHY

I Talk of Dreams. An Experiment in Autobiography. By Kenneth Walker. (Pp. 219. 10s. 6d.) London: Jonathan Cape. 1946.

Mr. Kenneth Walker in this latest work has provided us with an interesting, entertaining, and thought-provoking work. He only takes his autobiography as far as the end of the 1914–18 war, judging that more recent events have not yet got into proper perspective. His theme is that only very occasionally has he been able to see himself or the universe of which he is part as a whole, and much as he dislikes the conception of psychological determinism he is forced to the conclusion that almost always his behaviour has been determined by four characters within himself largely founded on boyhood fantasies: "Black Hawk," the Red Indian brave who is impervious to hardship or pain; "Selous," the intrepid explorer always seeking some new thing; "Knight-Paton," the chivalrous knight-errant-missionary; and "Personage," the rather snobbish seeker for reflected distinction to be derived from association with the very important persons of this world. This is a quartet which many might recognize in themselves. Mr. Walker describes certain high-lights in his life and the reactions of his four inner actors in these circumstances.

A schoolboy at the Leys, an undergraduate of Caius, and a medical student at Bart's make the setting. An expedition to Iceland, an ascent of the Matterhorn and of the Rothhorn in a thunderstorm, big-game hunting in East Africa, and six months in India are special high-lights. Next, five years of practice in Buenos Aires in an attempt to make money enough to escape from medicine; but then the Great War. This culminates in Walker's work in the forward areas, which was of the greatest value but which unfortunately for him never quite came to the fruition it deserved. The reviewer, who was also there, can vouch for the author's description of the disaster of Thomson's Cave on the third night of the Battle of Arras, which deprived him of the first forward operating set-up in the history of warfare, which has borne such great fruit in a greater war. Nevertheless perhaps Mr. Walker gives too scanty praise to the New Zealand tunnellers, by whose exertions 400 badly wounded men were got out of the cave without further casualties. Some of us less under the influence of "Knight-Paton" at that time envied and rather wondered at Kenneth Walker's apparent delight in mixing himself up with air-borne metal which we so cordially disliked. Now we know—or do we? Clearly this book needs a sequel: we want to know how these characters have mellowed and co-operated to develop Mr. Walker's more philosophic ego of recent years. May he be persuaded to round off this admirable contribution to psychological literature by further conclusions on the vexed question of determinism and free will and the construction of the personality.

Notes on Books

In the fifth edition of H. M. TRAQUAIR'S *Introduction to Clinical Perimetry* (Henry Kimpton; 36s.) anatomical names have been revised to conform to current usage. There are ten new illustrations. The text has been amplified to include experience gained in injuries seen during the war.

A second edition of R. M. HANDFIELD-JONES'S *Surgery of the Hand*, which we reviewed favourably in 1941, has now been issued. The book has been enlarged by the addition of short chapters on amputations and burns, and there are new paragraphs on the use of penicillin in various types of infections. There are also a few fresh illustrations chiefly related to the new matter. The new edition retains the attractive format of the first. It is published in Edinburgh by E. and S. Livingstone at 20s.

The full text has now been published as a booklet (London: Christopher Johnson, Ltd.; 5s.) of Sir ARTHUR MACNALTY'S Thomas Vicary Lecture for 1945 on *The Renaissance and its Influence on English Medicine, Surgery, and Public Health*. A shortened version appeared in these columns on Dec. 1, 1945. Sir Arthur gives a description of the times in which Thomas Vicary lived, and of the sovereigns, statesmen, scholars, physicians, and surgeons of his day, with reproductions of Holbein's famous picture of Henry VIII granting the Act of Union to the Barbers and Surgeons and of his drawing of Sir Thomas More at the age of 50, from the Royal library at Windsor Castle.

In *The Health of the School Child* Miss GERTRUDE E. CROMWELL (W. B. Saunders Company; 12s. 6d.) describes the general plan for school health work with particular emphasis upon the part to be played by the school nurse. She wisely sees the school as a unique opportunity for inculcating healthy habits and regards health education as something which can be best carried out with the child. American methods and outlook differ in some respects from the usual British standards, but this book should certainly be read by those responsible for the school health service in this country.

James Woolley and Co., Ltd., have issued a commemorative booklet entitled *Woolleys of Manchester*, being a record of 150 years in pharmacy. The firm was established by R. H. Hargreaves in 1796 and the business was acquired by James Woolley, who started as a medical student but was advised by John Dalton to make pharmacy his career, because he could not bear to witness the major operations, which were performed without anaesthetics. On the formation of the Pharmaceutical Society of Great Britain in 1841 James Woolley became one of its first members and took a leading part in the promotion of a Manchester branch. His great-grandson, Mr. G. S. Woolley, is now vice-chairman of the board of directors.

L'anémie infectieuse, by G. HEMMELER (Basle: Benno Schwabe and Co.; Swiss fr. 5), is a reprint of the author's researches on the anaemia of infection. The methods used were examination of the blood and the bone-marrow and estimation of the serum iron. Dr. Hemmeler concludes that the anaemia is of a hypoplastic type, due to toxic depression of the marrow. The serum iron is low during infection, but there is no reason to believe that the anaemia is due to iron deficiency. Owing to the isolation of Switzerland while the war lasted there are no references to American and English work during the last five years. Nevertheless, the author is in harmony with the American and English workers in believing that the intestinal epithelium plays a vital part in controlling the absorption of iron, and that in infection absorption is shut down.

American methods of heating would make it possible to provide heat throughout the whole of one of our houses for 24 hours a day for about the same amount of fuel as was used before the war by open fires in warming a small part of the house. This is one of the conclusions of a joint party from the Ministry of Fuel and Power and the Building Research Station and Fuel Research Station of the Department of Scientific and Industrial Research after spending nearly three months of the winter of 1944–5 studying heating, cooking, and hot-water supply in small houses in the U.S.A. and Canada. H.M. Stationery Office has now published (price 3s.) a report, *Domestic Heating in America*, which was prepared by the party on its return. This gives a comprehensive picture covering climatic conditions, fuel resources and costs, heat demand, distribution and maintenance of appliances, the relation of heating to house planning, smoke abatement, descriptions of heating, cooking, and water-heating appliances, chimneys, and heat insulation.

Nova et Vetera

ANCIENT MEDICAL TREATISES

Omar, he tells us, often wondered "what the vintners buy one-half so precious as the wares they sell"; and in much the same spirit is the wistful preface by Mr. J. I. Davis to the first post-war catalogue of medical and scientific desirabilia issued by his firm (Davis and Orioli, now in Maddox Street, W.), hinting that he would like to keep rather than to sell his delectable wares and apologizing for the high prices which market trends have dictated. It really is a remarkable assembly of rarities which is here catalogued, and it is feasible to indicate only the most covetable of mouth-watering items—not always, by the way, the most expensive. Aretaeus of Cappadocia is represented by the second edition of a pamphlet (Paris, 1554) at £8 10s.: his claim to fame is that he was the first to give a full description of diabetes, and he probably had some knowledge of cardiac auscultation. Then there is a first edition of Francis Bacon's *Instauratio Magna* (1620), to which science is indebted for the exposition of inductive reasoning; this seems very reasonable at £65. Very precious, too, is the textbook on anatomy by Jacob Berengarius da Carpi (Bologna, 1521) which is priced at £350: it is one of only eight known copies, most of which are in public libraries, and is the first and only edition. Berengarius was the leading authority until Vesalius eclipsed him. A translation into English by H. Jackson, published in London, 1664, of another of this anatomist's works is listed at £75; only about four other copies appear to exist. Bernard of Gordon, believed to be a Scot, who taught medicine at Montpellier in the thirteenth century, is represented by a treatise on medicine (Lyons, 1491), priced at £110: in it he describes plague, phthisis, epilepsy, scabies, erysipelas, leprosy, trachoma as contagious diseases, so clearly he had got beyond the demoniac conceptions of most of his contemporaries. Sir Thomas Elyot's *Castell of Health* is offered in an edition of 1559 (at £22 10s.)—of enhanced interest because it belonged to Edward Fenton, Frobisher's navigating officer, and one who took part in the defeat of the Armada. The treatise of Ferrerius on syphilis (1564, £12 10s.) recommends sarsaparilla for the "Spanish disease." The first edition of William Gilbert's book on magnetism (London, 1600) has an interest far outside medicine, of course; it does not seem dear at £105. The third edition of Harvey's *De Motu Cordis et Sanguinis* (Leyden, 1639) is priced at £68 (until recently it was thought to be the second edition); and the first edition (1651) of the *De Generatione* at £60. Extremely rare is a popular English digest of Hippocrates, published in London, 1530, one of about half a dozen copies, offered at £145. Ulrich von Hutten's book on the use of guaiacum in the treatment of syphilis—from which the author himself suffered—published at Strassburg in 1519, costs £75; whereas £130 is asked for the first edition of Jenner's classical treatise on smallpox and vaccination. An edition, believed to be the fourth, of John of Gaddesden's *Rosa Anglica*, which runs to over 1,200 pages (1595), can be got for £21, whereas £350 is the price of John de Ketham's *Medicine*, Venice, 1500: it is supposed to be the work of Johannes Kellner, professor at Vienna, 1445–70, and contains woodcut illustrations never previously equalled. Laennec's first account of auscultation (Paris, 1819) is quoted at £35. Then there are three medical works by Jean Paul Marat, the French Revolutionary celebrity—incidentally Messrs. Sotheby were selling by auction on Oct. 14 a collection of a number of his writings. Ambroise Paré is represented by the first edition (Paris, 1564, £185) of his magnum opus on surgery—only two or three copies exist; and also by his book on plague and other topics (1582, £150). Peyer, of the patches, a Swiss anatomist, is the author of the book announcing his discovery published at Schaffhausen in 1677 (£27 10s.). An edition of Roesslin's *Midwifery* (Paris, 1538, £55) is of great rarity: it was the source-book of Raynalde's *Byrthe of Mankynde* (1545). There is space only to mention three or four items by Vesalius: perhaps of greater surgical interest is a book by Volkmann in 1875, annotated by Lister himself, who praises the author for having so fully comprehended the antiseptic doctrine. This is on sale at 4 guineas.

A further rarity deserving mention was to be sold, on the same day as the Marat pamphlets mentioned above, at Sotheby's Rooms. It is *The Treasur of Health* by Pope John XXI, translated by Humphrey Lloyd and published in London about 1550 by William Coplande: only one other copy is known to bibliographers, so keen competition was natural enough, and it fetched £65. At a further sale on Oct. 28 at the same Rooms a small medical library was catalogued: most of the items are of moderate rarity, but there are a few exceptions, such as Celsus, *De Re Medica*, Lyons, 1554; Dioscorides, *De Medicinali*, Venice, 1538; Glisson, *Anatomia*, Amsterdam, 1659; Harvey, *De Generatione Animalium*, Hague, 1680; Roesslin, *Ghestande Artzneybuch*, Frankfurt, 1590; Alexis of Piedmont, *The Secrets* (English translation), 1578. H. R.

CHARLES BATEMAN, CHIRURGEON: EXECUTED FOR HIGH TREASON, 1685

Macaulay has noticed the trial and execution of Bateman, a surgeon, in his *History of England*. A man of this name was apprenticed at Barber-Surgeons' Hall in the year 1651–2 to Thomas Bell, surgeon, and is almost certainly the man in question. *The State Trials* (Hargrave's Edition, 1776) gives an account of the proceedings.

In the first year of King James the Second Charles Bateman was tried at the Old Bailey on Dec. 9, 1685. He was accused of conspiring to bring about the death of the late King. In the first instance he asked for a postponement of his trial, but was told by Mr. Recorder (Sir Thomas Jenner) that he must plead before he could be heard. The indictment was read and Bateman pleaded not guilty. He said he had been kept a close prisoner for ten weeks, was much indisposed, and had had neither notice nor panel of jury. After some discussion he was allowed pen, ink, and paper and his son to assist him. It appears that his residence was in the parish of St. Dunstan's in the West, in the ward of Farringdon Without.

Mr. Phipps, Counsel for the King, opened the case and was followed by Mr. Serjeant Selby and Mr. Charles Moloy. The prosecution's first witness, Josias Keeling, swore to having been at divers meetings at which methods were discussed. Rumbold*, since executed for high treason, was present at one of them; a discussion took place on a design to divide the City into twenty parts, to raise 500 men for each part, who were to be under one chief with nine or ten subordinates. Bateman said that the evidence of this witness contained nothing against himself, and this was allowed by the Court. Thomas Lee swore to the plan to divide the City as mentioned above and stated that Bateman had been nominated as manager of one part, his particular task being to try to obtain possession of the Tower. To this Bateman replied that had he been conscious of what was laid to his charge he was fit for Bedlam. Richard Goodenough gave evidence that Bateman had promised his assistance to a design to seize the City in connexion with the Duke of Monmouth's rebellion.

Bateman seems to have relied on endeavouring to show that the witnesses for the Crown were not to be depended upon; and the Court seems to have allowed that Goodenough, who had previously been pardoned, was not a creditable witness. The Lord Chief Justice (Jeffreys) summed up impartially and the jury found Bateman guilty. He was executed at Tyburn on Dec. 18, 1685.

In the Remarks on the Trial it is stated that Bateman was reputed to have been chirurgeon to the Earl of Shaftesbury; that he had attended Oates after his whipping and had let him blood. That infamous scoundrel Titus Oates was sentenced to be whipped at the cart's tail from Aldgate to Newgate, and after two days' interval to be whipped from Newgate to Tyburn. It may have been after the first whipping that Bateman attended him. One would have thought that he would have lost enough blood to have rendered any further phlebotomy unnecessary. It is a fact that both parts of the whipping were carried out.

Mr. Le Fanu informs me that Charles Bateman's son, Richard, was apprenticed at Barbers' Hall on April 9, 1678, for seven years. R. R. J.

The new quarterly *Journal of the History of Medicine and Allied Sciences* will in future be issued in this country and the British Empire by William Heinemann (Medical Books), Ltd., 99, Great Russell Street, W.C.1. No. 3 of Volume I is now available. The English subscription terms are 50s. per annum (or four issues) and 12s. 6d. for a single issue.

* Rumbold was concerned in the Rye House plot.

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THE MENACE OF BLEACHED FLOUR

One of the most remarkable developments in the long struggle for wholesome and nutritious bread is reported by Sir Edward Mellanby at page 885 of this issue. In his laboratory dogs given a diet consisting largely of flour which had been bleached by the "agene" process invariably developed hysteria. Control animals fed upon the same diet but with unbleached flour remained free from this syndrome. For about twenty years canine hysteria has presented a problem which is as interesting to the pathologist as it is distressing to the dog-owner. Those familiar with the dog's sidelong glances at some unseen terror, the frightened barking, and the aimless rushing round which precedes exhaustion will appreciate the accuracy of Mellanby's description. Various authorities have ascribed this condition to factors as diverse as the after-effects of distemper, worms, ticks, or even a perverted appetite for gravel. For some time, however, enlightened veterinarians have concluded that more often than not hysteria in dogs is nutritional in origin.

It has long been known that certain wheat products are liable to cause this hysteria. Dog-biscuits and meals manufactured under excessive exposure to heat have been especially suspect. There has been difficulty, however, in deciding whether the trouble was due to a toxic factor or to deficiency of some essential nutrient. Melnick and Cowgill[1] found that their dogs had hysteria when given diets containing gliadin, the alcohol-soluble fraction of wheat gluten, and they considered that protein sensitization was involved. Arnold and Elvehjem[2] thought that the syndrome was attributable to deficiency of the amino-acid lysine, though Wagner and Elvehjem[3] later discarded this view in favour of the theory of a toxic agent. Mellanby's new finding seems to indicate that the toxic substance is not present in the natural wheat but is formed by the action of the bleaching agent, which in the "agene" process is nitrogen trichloride. This and other processes have been widely used here and in America to bleach flour and improve its baking qualities. It is therefore likely that wheat products found to be toxic by previous workers have been submitted to similar treatment.

Attempts to elucidate the nature of the toxic substances are being made. Mellanby intends to find out, and it will be of crucial importance to know, whether wheat gluten, like flour, acquires toxicity only after bleaching. Meanwhile it is interesting to speculate on the possible mechanisms by which such a trustworthy food as wheat can become poisonous. The most important constituent of wheat gluten is glutamic acid, which makes up as much as 43% of the total amino-acid content. There seems little reason to suspect injury from this direction. Indeed, Price, Waelsch, and Putman[4] have claimed that *dl*-glutamic acid hydrochloride is a useful drug in the treatment of patients suffering from petit mal and psychomotor seizures. As Mellanby has pointed out, however, chlorine may act upon the tyrosin and tryptophane groupings of the gluten complex, and it is possible to visualize the formation of toxic bodies in this way. Kodicek, Carpenter, and Harris,[5] for example, have shown recently that indole-3-acetic acid (heteroauxin), a substance related to tryptophane, may in certain circumstances have an adverse action on rats.

Mellanby's observations have been confined to the effects of the bleached whole flour. If the American work on the toxic properties of wheat gluten were unknown it might well have been assumed that these effects were due to the destruction of vitamins. Vitamins are present in such minute amounts that in many instances they are selectively attacked by the relatively small amounts of chlorine used in bleaching. They therefore suffer far greater damage than would be the case if the chlorine distributed its action evenly over all the components of the flour. In particular it might have been thought that the hysteria resulted from a destruction of adermin (vitamin B_6). Chick, El Sadr, and Worden[6] found that rats deprived of this factor developed epileptiform fits which were obviously very similar to hysteria in dogs. Wagner and Elvehjem were unsuccessful in a single attempt to prevent hysteria by giving vitamin B_6, and Mellanby's dogs developed hysteria even though their diet contained yeast, a rich source of this vitamin. Against these findings we may place the experience of some veterinarians, who find that hysteria is often amenable to treatment with yeast. While awaiting further experimental developments it may be premature to exclude completely the possibility of dietary deficiency. Even if it is proved that wheat gluten becomes toxic after bleaching it is still possible that it may exert its injurious action by interfering with the absorption or metabolism of adermin. For this hypothesis we have a parallel in the work of Boas[7] on the increased demand for biotin in rats given avidin in the form of unboiled egg white.

Whatever the true explanation of the action of bleached flour may be, it is clearly undesirable that food unfit for dogs should be eaten by the human subject without at least a full realization of the dangers involved. Perhaps some comfort may be drawn from the different response to wheat products shown by different species. Wagner and Elvehjem were unable to detect fits in rats, guinea-pigs, monkeys, and chicks feeding on sufficient wheat gluten to cause hysteria in dogs. As yet we have little, if any, evidence that diet is a significant factor in human epileptiform fits, and the consumption of large quantities of bread made from bleached flour is obviously not inconsistent with the maintenance of an ordinary state of health in most people. All will agree, however, with Mellanby's statement that carefully planned experiments with human volunteers are now required. Until such experiments have been completed the estimate that 90% of the flour consumed in this country is "agenized" cannot fail to give rise to some anxiety.

1 *J. Nutrit.*, 1937, **13**, 401.
2 *J. Amer. vet. med. Ass.*, 1939, **95**, 303.
3 *J. Nutr t.*, 1944, **28**, 431.
4 *J. Amer. med. Ass.*, 1943, **122**, 1153.
5 *Lancet*, 1946, **2**, 491.
6 *Biochem. J.*, 1940, **34**, 595.
7 Ibid., 1927, **21**, 712.

THE UNSTABLE ADOLESCENT GIRL

Criminal statistics are notoriously difficult to interpret. Whether an individual is charged or not depends as much on the social conventions of the neighbourhood, and the efficiency of the police, as on his or her behaviour. Even so, the figures given recently in the House of Lords[1] are disturbing. Whereas during the war years the overall increase in convictions has been of the order of 50%, in the case of girl offenders it has been more than fourfold. As a result the facilities for dealing with them have been overstrained and have in many cases broken down. Quite apart from the embarrassment of numbers, however, is the problem of devising scientific methods for effecting their rehabilitation. The report on the unstable adolescent girl by a joint committee set up by the Magistrates' Association and the British Medical Association, which appears at page 909 of this issue, is, therefore, timely.

The committee goes to the heart of the problem in its third paragraph: "It is important to realize that the girl's appearance in court is seldom the result of her first misdemeanour. . . . Thus the magistrate has to deal not with first offenders, but with girls whose undesirable behaviour and standards of conduct may already be well established. . . . The fundamental cause of the delinquency is usually found by the psychiatrist to be some defect of character structure." Unless these facts are kept constantly in mind, plans to deal with the problem will remain ineffective. Punishment, for instance, is of little or no avail in these cases. Had it been so, persistent misbehaviour would have been checked long ago, for few if any of these girls have escaped their share of punishment. Indeed it is this failure to react to punishment and to the disapproval of friends and relatives which constitutes a major feature of the character defect from which they suffer. To say that legal proceedings and punishment are of little avail for these cases is not to call them in question as methods of keeping the ordinary citizen from speeding or shoplifting. In fact most of us are aware that such conditions have a deterrent effect on us. That is a measure of our normality.

The failure of the persistent delinquent to respond to praise or blame is a part of her "social deficiency." The report emphasizes this: "She is lacking in feelings of love, either for her parents or anybody else; she has no sense of loyalty . . . she is incapable of friendship. . . ." This, of course, is the "lesion" from which so many delinquents suffer—a dysfunction of their capacity for loving or loyal human relationship. The origin of this dysfunction is perhaps less of a mystery to-day than formerly, when airy assumptions of constitutional factors gave a false impression of knowledge and directed attention away from the influence of environment. Psycho-analytical researches have demonstrated the developmental continuity of human relationships from the cradle to the grave. Relationships in later life are the descendants, often modified and usually camouflaged, of earlier relationships, particularly those to parents and siblings in infancy. The first of all our human relationships, that to our mothers, is in fact the foundation on which all our later relationships are based. If it is unsatisfactory, then later relationships will also be unsatisfactory. This traditional truth has been particularly stressed by A. Freud,[2] Edelston,[3] and others, who have drawn attention to the adverse effect of prolonged separations of mother and child in infancy and early childhood on the child's capacity for making good personal relations in later life. That such prolonged separations are specifically related to persistent delinquency has been demonstrated by Bowlby.[4]

Our greater understanding of the psychopathology of the unstable adolescent permits of a more rational approach to prevention and treatment. "Existing methods of handling these girls," the committee reports, "are often likely to exacerbate rather than improve their tendency to misconduct." Particularly to be condemned is the present tendency for girls to be sent from remand home to hostel, from hostel back to remand home, from there to a classifying school, then for a period in an approved school, and perhaps finally to Borstal. It is as though cases of advanced phthisis were to spend months or years going from general hospitals to clinics and to convalescent homes before being sent to a properly equipped sanatorium. In the case of the unstable offender this chopping and changing is so serious because it is her incapacity to make stable and good personal relations which constitutes the heart of her illness. Frequent changes of this kind can only make matters worse.

In its recommendations the committee emphasizes that treatment and supervision of most of these girls will require to be prolonged if they are to be effective. Lay staff in charge of schools and hostels must be specially selected and trained and, it might be added, generously paid, since no work is more exacting, and a high degree of professional competence must be demanded. The nature of the training is not touched upon, but it is evident that special attention must be given to the psychology of human relations and to group techniques for dealing with individuals whose capacity for making good relationships is impaired. The work of Merino[5] is still too little known in this country. The grave shortage of psychiatrists, both to assess personality and to undertake therapy, is stressed. This shortage will be increasingly felt as the true nature of the problem is more clearly appreciated.

Perhaps the greatest defect of the report is its relatively scant attention to preventive measures. Improvements in housing and nutrition are, of course, not unimportant, but nothing is said of other measures for promoting healthy family life. It is now well known that many homes already disrupted or in danger of disintegration can be mended by enlightened social welfare. Family clubs, such as the Peckham Health Centre, and nursery schools each have an enormous contribution to make to the promotion of good mother–child relations. Furthermore, an adequate child guidance service, with access to all children and not only to those already seriously ill, could identify in childhood many girls likely to get into difficulties in adolescence and guide them or treat them before the sorry tale of trouble has begun.

Though in some respects the committee's report fails to go sufficiently far it is none the less encouraging to find

[1] *Hansard*, **144**, col. 415: Nov. 27, 1946.

[2] *Infants Without Families*, 1944, George Allen and Unwin.
[3] *Separation Anxiety in Children*, 1943, Genetic Psychology Monographs.
[4] *Forty-four Juvenile Thieves*, 1946, Baillière, Tindall and Cox.
[5] *Who Shall Survive?*, 1934, Nervous and Mental Diseases Publishing Co. Washington, D.C.

in this document, as in most others prepared in recent years, that doctors and magistrates alike have approached their problem in a realistic and scientific spirit. Moral indignation and ignorant sentimentality have been displaced. If Samuel Butler were to chance upon this report he might perhaps wonder if, after seventy-five years, he was paying a second visit to Erewhon. But a glance at the records of the recent Titchener case would all too soon convince him that the retributive motives of the nineteenth century rather than the therapeutic outlook of Erewhon still govern much of our legal action.

DERIVATIVES OF THIOURACIL

With the demonstration of the inhibition of thyroid function by thiouracil and related compounds a new era began in the treatment of thyroid diseases. The therapeutic use of such compounds has demonstrated their efficacy in abolishing the hyperthyroid manifestations of toxic goitre, and early reports were so encouraging that their widespread and enthusiastic administration was undertaken. Dosage was often haphazard, impatience sometimes prompting the use of ever-increasing amounts, and although such measures relieved thyrotoxic patients of their symptoms it was soon apparent that the treatment was not without risk, for toxic effects were not infrequently observed and agranulocytosis often caused alarming manifestations. Such occurrences became fewer as the management of the treatment was elucidated and the quantity of the drug administered was reduced to minimal requirements, but even under the most careful conditions accidents were still apt to happen. Notwithstanding these drawbacks the treatment was obviously a great advance in therapeutics; the hyperthyroidism could be effectively controlled by maintenance therapy.

Two courses of action were now available: medical treatment only could be employed and the disease controlled apparently indefinitely, or the drug could be used to render the patient non-toxic before surgical interruption. The duration of treatment required by medical means alone was unknown, and is still debatable. In any case treatment must of necessity be protracted, and careful observation is required to avoid undesirable effects and the production of hypothyroidism. Experience has shown that although the toxic effects of these drugs are more likely to appear early in treatment, when the dosage is higher than that required for maintenance therapy, they may still occur even after months of administration. In addition the goitre itself may cause trouble by a considerable and often progressive increase in size. These hazards and the length of treatment required can be reduced to a minimum if such drugs are used as a preparatory treatment to surgical operation. Early experience showed that, although the dangers of the operation on the hyperthyroid patient were reduced by the removal of the toxic factor, the technical difficulties were often magnified, since the increased vascularity of the gland made haemostasis an almost impossible task and moreover obscured the field of operation to such an extent that it was difficult to avoid damage to surrounding structures and to assess how much gland should be removed.

It was known that previous treatment with iodine rendered the response to thiouracil less rapid. Similarly, iodine used concurrently with thiouracil diminished the response and increased the dosage required. However, it has now been found that it is possible, after obtaining the maximum desired response to thiouracil, to use iodine to produce pre-operative involution of the thyroid; and operation can then be performed before hyperthyroid manifestations recur and without the gross increase in vascularity associated with thiouracil treatment alone.

There is little doubt that the larger the dose of the compound used the greater is the liability to toxic phenomena. This has led to an investigation into related compounds to find a substance which would have greater efficacy in the reduction of thyroid secretion and less liability to produce toxic reactions. The continuation of this search is described by E. B. Astwood and W. P. Vander Laan,[1] who discuss the use of two substituted thiouracils—namely, 6-ethylthiouracil and 6-*n*-propylthiouracil. The former, which was used in only fourteen patients, showed a high order of activity, but was abandoned in favour of 6-*n*-propylthiouracil owing to difficulties in synthesis of the former and the apparent superiority of the latter, with which twenty-nine patients were treated.

It seems that this compound is as uniformly successful in controlling the hyperthyroidism rapidly and effectively as is thiouracil, but that the dosage required is much smaller. The difficulties of comparing dosage are enormous, and it is obvious that an endeavour was made to use the smallest dosage compatible with the production of an adequate therapeutic result. It is abundantly clear, however, that the dose required for both initial and maintenance therapy is many times smaller than that of thiouracil. Moreover, of these cases only one showed any evidence of toxicity, and that was a patient treated with 6-ethylthiouracil. This finding appears more significant than would perhaps be justified by the figures alone in this comparatively small series, for a number of the cases had obviously shown such marked intolerance to thiouracil itself that treatment had been abandoned. It seems therefore that 6-*n*-propylthiouracil not only shows greater activity in reducing thyroid secretion than its parent compound but has, as the authors suggest, a greater specificity in its action and in consequence is freer from side-effects. There is little doubt that it is a considerable advance on thiouracil, but its discovery must not be regarded as ending the search. One patient in this series developed progressive enlargement of the goitre in spite of very small doses. It is hoped that further work will be done to find a better compound.

TREATMENT OF AGRANULOCYTOSIS

In this issue of the *Journal* (p. 897) Librach and Cronin report an example of an unusual type of agranulocytosis in which recovery followed pentose nucleotide given by continuous intramuscular drip. Their discussion of the case closes on a note of scepticism. They conclude that recovery was spontaneous and not determined by their novel method of administering this drug. This comment would be endorsed by others who have experience of treating

[1] *J. clin. Endocrinol.*, 1945, **5**, 424.

agranulocytosis. The fall in the mortality of this disease must be attributed to recognition and withdrawal of the causative drugs rather than to any specific therapeutic advance.

There are two conditions in agranulocytosis at which treatment can be aimed: first, the leucopenia, and, secondly, the consequent bacterial invasion. Attempts to raise the leucocyte count by substances stimulating leucopoiesis have been disappointing. There is general dissatisfaction with pentose nucleotide, and little less with adenine sulphate. Pyridoxine has been acclaimed recently as a powerful leucopoietic stimulant in the agranulocytosis due to thiouracil.[1] Whether it is equally beneficial in agranulocytosis due to other agents is not yet certain, though good results are reported in sulphonamide agranulocytosis.[2] There is some evidence that thiouracil does not produce leucopenia in quite the same way as amidopyrine.[3] Nevertheless, pyridoxine intravenously, in doses of 100 to 200 mg. daily, offers at present the best hope of increasing the leucocyte count rapidly in cases of agranulocytosis caused by drugs. In the absence of specific leucopoietic stimulants the second therapeutic aim has become of first importance. Damashek and Wolfson[4] suggested in 1942 that in agranulocytosis death is due not to leucopenia but to the sepsis which follows it. The truth of this contention is generally admitted, but the therapeutic implication has not been so widely appreciated. The importance of combating infection led to the contradictory recommendation that sulphonamide agranulocytosis be treated with yet more sulphonamide. With the discovery of penicillin this problem is now solved, and its parenteral administration in thiouracil agranulocytosis has been attended with great success.[5] A case of this kind is recorded by A. J. Thomas at page 899 of this issue.

There is still a tendency to employ in each case all the methods of treatment which have been recommended during the past fifteen years. Thus it is common to read of patients who have received blood transfusions, liver extract, yellow bone-marrow extract, and nucleotide. Many of these measures have been discredited, and the efficacy of none has been proved. Pyridoxine and penicillin appear to offer more hope, but in spite of them agranulocytosis remains a serious disorder with a mortality of some 25%. Possibly, however, Reznikoff's judgment that "patients recover spontaneously or die, no matter what treatment is given" is now more cynical than accurate.

STREPTOMYCIN: THE PRESENT POSITION

The hopes raised by early American work that streptomycin might prove a cure for some of the worst forms of tuberculosis, including tuberculous meningitis, have led to a widespread and embarrassing demand for supplies of the drug for use in individual patients. It may therefore be desirable to restate the present position so far as this country is concerned. A limited amount of streptomycin from American and British sources is expected to be available within the next few months, and this will be used in carefully controlled tests made under the supervision of two special committees set up by the Medical Research Council; one of these committees will organize tests in patients with such types of tuberculosis as are likely to give clear-cut evidence of the uses and limitations of the drug in that infection; the other committee will organize trials of the drug in certain non-tuberculous infections for which American and other evidence suggests that it is likely to be valuable.

These official trials cannot start until the supplies of the drug available in Britain are adequate; and, because both of the limited amount of material, and of recent American evidence that streptomycin has a number of objectionable side-effects, they will need to be confined to small numbers of patients treated under very careful supervision. In these circumstances requests for supplies of streptomycin for use in individual patients, or for the inclusion of particular institutions or individual patients in the scheme of official trials, cannot at present be entertained. It is now known that to produce any chemotherapeutic effect in tuberculosis relatively prolonged treatment with large doses of streptomycin is necessary. The giving to patients of small amounts obtained in response to appeals *ad misericordiam* cannot do good and may even do harm.

The evidence from the trials already made in America leaves it at present quite uncertain whether streptomycin will prove, in the long run, to have great therapeutic value in tuberculosis, and it may eventually be decided that the chief clinical uses of the drug lie in the treatment of certain other infections resistant to penicillin. The results of American and limited British tests of streptomycin in tuberculous meningitis have, in particular, been far less encouraging than was originally hoped; there seems to be a very real risk that, even if the infection is controlled (as has only very rarely happened), the patient will usually be left mentally deficient, deaf, blind, or otherwise a hopeless invalid.

THYROID POISONING

Since it has been realized that Graves's disease is rarely if ever due to an abnormality primarily in the thyroid gland itself doubts have been cast upon the possibility of initiating the disease by overdosing with thyroid. Most physicians must at some time have seen cases of gross thyroid poisoning without so dire a sequel, and Falta's comprehensive review makes no mention of it. That it can occur is suggested in English literature only by Moorhead[2] and Brain,[3] though Continental workers have been more aware of the possibility. The literature has recently been reviewed by Bruun,[4] who describes eighteen examples within his own experience.

In the medical department of the Rigshospital at Copenhagen 15 out of 485 thyrotoxic patients had taken thyroid shortly before the development of symptoms. Their ages lay between 24 and 66, and they were all women. Of 28 such patients previously reported by other authors only 2 were men. Of Bruun's 18 patients 11 had been given thyroid for obesity, 3 for myxoedema, 2 for colloid goitre, 1 one for alopecia, and 1 for "muscular rheumatism." The total monthly dose received, expressed as thyroxine equivalents, varied between 0.25 and 30 mg. over periods of from three weeks to thirty years.

An enormous quantity of thyroid extract is consumed chiefly by patients troubled by obesity, and it is pertinent to inquire why an occasional patient should develop thyrotoxicosis often after taking small doses of thyroid for only a few weeks, when thousands can take it for years with impunity. Various suggestions have been put forward. Means and Richardson,[5] who do not mention thyroid medication as a cause of thyrotoxicosis, believe that dieting alone may be responsible. Eleven of Bruun's patients and 7 out of 9 reported by Lous[6] in the same journal were

1 *Proc. Soc. exp. Biol. Med.*, 1945, **60**, 181.
2 *Amer. J. med. Sci.*, 1946, **211**, 672.
3 *Blood*, 1946, **1**, 407.
4 *Amer. J. med. Sci.*, 1942, **203**, 819.
5 *Blood*, 1946, **1**, 53.

1 *Wien. klin. Wschr.*, 1937, **50**, 1347.
2 *British Medical Journal*, 1931, **1**, 442.
3 *Lancet*, 1936, **1**, 182.
4 *Acta med. scand.*, 1945, **122**, 13.
5 *The Diagnosis and Treatment of Diseases of the Thyroid*, By J. Means and E. Richardson, London, 1938.
6 *Acta med. scand.*, 1945, **122**, 83.

under treatment for obesity. That they were suffering from the evil effects of dieting rather than of thyroid poisoning is flatly denied by Bruun, who has failed to find a single case of dietetic Graves's disease in the records of the Rigshospital. It is, however, theoretically possible that the trouble is due not to the thyroid hormone itself but to its contained iodine—a suggestion that needs further exploration.

Bruun discusses the possibility that the sympathetic nervous system is involved in the phenomenon. Ten of his patients had exophthalmos, and he quotes Justin-Besançon[7] and his collaborators as authorities for the statement that, though thyroxine alone cannot induce exophthalmos, in combination with sympatheticomimetic drugs it can do so. Justin-Besançon's paper requires confirmation, for on internal evidence it is doubtful whether he and his colleagues clearly differentiated between exophthalmos and lid retraction—a criticism which can unfortunately be brought against much of the less recent work—but assuming that his observations can be accepted, it has still to be shown that Bruun's patients were either taking sympatheticomimetic drugs or were the subjects of sympathetic over-stimulation from some other cause; and of this there is no evidence.

The most likely explanation of the appearance of thyrotoxicosis in these patients is afforded by the observation that in the history of 45% of them it was possible to demonstrate either a familial tendency to exophthalmic goitre or definite previous thyroid disease. Bruun also quotes Bartels, who, in a mixed group of patients with exophthalmic goitre and toxic adenoma, found a familial disposition in 47%. The similarity between the percentages raises the possibility that in Bruun's series the thyroid did nothing but expose a pre-existent weakness which would otherwise have shown itself later at a time of metabolic or psychological stress.

If this is the true explanation the occurrence of thyrotoxicosis in patients taking thyroid fits neatly into the hypothesis advanced by Boon.[8] He postulates a vicious circle in which, in predisposed persons, a prolonged overactivity of the thyroid induced by worry or other cause sensitizes the nervous system in general, including the hypothalamus. The hypothalamus induces an increased output of thyrotrophic hormone from the anterior pituitary with, as an immediate result, a prolongation of the excessive thyroid secretion. On this hypothesis it was the thyroid administered to Bruun's patients which sensitized their hypothalami and introduced them into the vicious circle of thyrotoxicosis.

Whatever be the true explanation, the moral is clear. Even in myxoedema, but especially when there is no underactivity of the gland, thyroid extract should be administered with special care to those whose personal or family history suggests a tendency to thyrotoxicosis.

[7] *Bull. Mém. Soc. méd. Hôp.*, Paris, 1931, **47**, 1883.
[8] *Acta psychiat. et neurol.*, 1938, Supp. 18.

MODE OF ACTION OF PENICILLIN

When sulphonamides were first introduced there were many attempts to explain their action by one hypothesis or another, until at last Woods discovered the fundamental relation between these compounds and *p*-aminobenzoic acid. There is to-day a similar stage of uncertainty about the mode of action of penicillin. It is known to act mainly on cells which are in active mitosis, but how it exerts this effect is still largely a mystery, partial light on which is thrown by recent observations of Schwartzman.[1] Working with Gram-negative bacilli, such as *E. coli*, grown *in vitro* on a synthetic medium, he found the composition of it greatly influenced the susceptibility of these organisms to penicillin. The action of penicillin is much diminished if serum, broth, yeast extract, or casein hydrolysate is present in the medium. Investigating the amino-acids, he next found that penicillin is similarly antagonized by dicarboxyl-mono-amino-acids, such as glutamic acid, and by cystine, arginine, histidine, and hydroxy-proline. Further work implied that this anti-penicillin activity is due to the effect of these acids upon bacterial metabolism rather than to an interaction with penicillin or to a stimulation of bacterial growth. In contrast with the *p*-aminobenzoic acid–sulphonamide antagonism, there is no direct proportion between the concentration of amino-acid and the amount of penicillin which is inactivated. Previous passage of the organism through media containing these amino-acids increases its susceptibility to penicillin in subsequent tests, and these observations can be explained by the hypothesis that penicillin somehow hinders the synthesis of these amino-acids. If the amino-acids are added to the medium the bacillus can obtain them from its environment and is less dependent on its own synthesis, and consequently penicillin is less effective. Conversely, if the bacillus is grown for many generations in media which contain these essential acids it becomes "soft" and gets out of the habit of making them itself. When it is suddenly transferred to a medium which does not contain them it is unprepared for the new emergency and falls a more ready prey to the inhibitory action of penicillin upon its weakened power of synthesis. A contrast to those amino-acids which antagonize penicillin is presented by methionine, or by a mixture of methionine, methionine sulphoxide, and threonine, which increase the potency of penicillin. Apparently they act by reversing the antagonism to penicillin of the amino-acids, meat infusions, broth serum, and similar substances mentioned above which may be present in the medium; but the theoretical explanation of the complementary action of methionine is incompletely worked out. Though these observations of Schwartzman refer to Gram-negative bacilli, which are less sensitive to penicillin than are the Gram-positive cocci, a valuable clue to the elucidation of the action of penicillin becomes available.

MEPACRINE RASHES

During the recent war a number of puzzling dermatological problems arose in those theatres where mepacrine was employed in the prophylaxis or treatment of malaria. The eruptions assumed a great variety of patterns, resembling in their early stages eczematous or seborrhoeic dermatoses, heat rashes, or fungous infections, and, later, hypertrophic lichen planus. Gradually the significance of these ills became clear and they were recognized as a rare, idiosyncratic reaction to mepacrine. Nisbet,[2] and Schmitt, Alpins, and Chambers[3] have recorded the findings in American Forces serving in the New Guinea area. The first cases arose towards the end of 1943, occurring on an average three and a half months after starting mepacrine therapy. Similar reports were made by Grant Peterkin to the British authorities from the Middle East theatre, and the same conditions were seen by dermatologists in India.

The syndrome has certain distinctive features, among which are the pigmentation and lichenoid changes. It tends to affect seborrhoeic sites, but readily progresses to a general affection, with secondary sepsis and ulceration; and it runs a protracted course. Irritation is not a marked

[1] *J. exp. Med.*, 1946, **83**, 65.
[2] *Arch. Derm. Syph.*, Chicago, 1945, **52**, 221.
[3] Ibid., 1945, **52**, 226.

feature of the condition. Nisbet describes the following three types of reaction, and though all stages may be seen in the same patient the lichenoid and generalized eruptions commonly follow the patchy eczematoid. (1) The patchy eczematoid type accounts for 30–40% of cases; the hands and feet, groins, eyes, and ears are the sites of election. (2) The hypertrophic lichenoid type may arise as such primarily but usually follows the former type. Spread is rapid, and the appearances resemble a very severe and unusually extensive chronic hypertrophic lichen planus. Mucous membranes are involved, as are the scalp and the face. The latter is rarely attacked in true lichen planus. A peculiar bluish-grey pigmentation occurs. The typical polygonal papules with flat, shining surface are absent, and the glans penis is not affected. (3) The generalized exfoliative type usually follows upon the eczematoid or lichenoid. If it is a primary occurrence it may be acute and oedematous and cause pyrexia.

The patients are ill and unfit for duty, are in hospital for an average period of three and a half months after being evacuated from the Tropics, and may not recover for six to twelve months. Pigmentation may be very persistent and in some cases a fine reticular atrophy is seen. Hair and nails were often shed, but they grew again in all cases observed. No drug therapy proved of value except penicillin for the secondary sepsis that was a frequent complication. Nisbet thought that light aggravated his cases, but Schmitt and his fellow-workers did not find this. They stressed the affection of mucous membranes in one-third of the cases, the presence of glandular enlargement, and occasional pyrexia. Their paper gives in more detail several case histories and is well illustrated. They discuss the differential diagnosis from eczema, contact dermatitis, urticaria, lichen planus, heat rash, and fungous infections.

The incidence of this adverse response to mepacrine was not sufficiently high to justify withdrawal of the drug from general use, but those subject to the disturbance could not subsequently take the drug without relapse of the dermatosis. They had therefore to be withdrawn from those areas where prophylactic measures against malaria were necessary.

VITAMINS IN HUMAN MILK

Carefully planned and co-ordinated investigations recently reported by Macy and others[1] provide further information on the vitamin contents of human milk, and an accurate assessment has been made of the substantial demands for these nutrients made by the infants. The general plan of the experiments was to estimate the vitamins by chemical or microbiological methods in specimens of colostrum and of mature milk taken from large numbers of mothers at successive intervals after parturition. It was fully realized by Davies and colleagues[2] that the composition of milk varies greatly according to whether it is collected in the early or late stages of any particular withdrawal, and precautions were taken to avoid undue errors from this source. Usually the milk from mothers on a carefully chosen institutional diet was compared with that of mothers who had chosen their own diet, but the differences found, even if in some cases statistically significant, were relatively small. It is perhaps remarkable that even the approved diet failed to reach the standards originally recommended by the U.S.A. National Research Council for ascorbic acid, thiamin, and nicotinic acid. Yet the diet included liberal quantities of chicken, eggs, liver, spinach, carrots, apricots, butter, cream, and milk: the authors hint that for normal adults the official standards may have been unduly high.

The different concentrations of vitamins in colostrum and mature milk was one of the points studied. Previous knowledge has been confirmed, and valuable new facts have been collected. Thus, as compared with mature milk, colostrum contains ten times more carotene, twice as much vitamin A, and half as much again of ascorbic acid and nicotinic acid. On the other hand milk is about five times richer in pantothenic acid than is colostrum; the concentration of biotin is doubled as the milk matures, and the content of thiamin and riboflavin increases greatly. A difference in behaviour between fat-soluble and water-soluble vitamins might perhaps have been expected, but the observed divergences between the various water-soluble vitamins present an interesting problem to the biochemist.

Equally interesting, and possibly of more practical importance, are the differences shown by Lawrence and his colleagues[3] in the vitamin contents of mature human milk and mature cows' milk. The data for human milk were mostly taken from Macy's investigations,[1] with the women choosing their own diets. Human milk is much richer than cows' milk in vitamin A, ascorbic acid, nicotinic acid, inositol, and folic acid, and much poorer in thiamin, riboflavin, and biotin. The differences between human milk and cows' milk are even more numerous than had been suspected and provide a further pointer to the superiority of human milk to cows' milk for infant feeding. But lactation makes severe demands on the mother's vitamins. If 900 ml. per day is taken as a typical output during the middle stages of lactation, the mother loses on an average 585 μg., or about 2,000 I.U., of vitamin A, and 45 mg. of ascorbic acid daily. Experiments by the Medical Research Council[4] have shown that 1,250 I.U. of vitamin A daily are enough to cure experimental deficiency in adult humans, while a daily intake of 45 mg. of ascorbic acid would be considered by many to be an adequate safeguard against scurvy. The drain by lactation on the mother's reserves of these two vitamins is therefore considerable when compared with the normal daily requirements, and the National Research Council of the U.S.A. has ample justification in setting high standards of intake for lactating women.

R.M.B.F. CHRISTMAS APPEAL

Sir Arnold Lawson, long an active worker for the Royal Medical Benevolent Fund, is now its President in succession to the late Sir Thomas Barlow, and he takes the same personal interest in the Annual Christmas Appeal on behalf of the poor beneficiaries of the Fund. Last year he asked for £2,000, and his appeal brought in £2,127, which provided £4 for each beneficiary. These gifts were very welcome as a token of goodwill from members of the medical profession and as a means of buying a few extra comforts for Christmas. A short time ago Sir Arnold Lawson wrote to ask our readers for a similar sum this year, and his letter appeared in the *Journal* of Oct. 19 (p. 588). Life is difficult for everybody these days, but especially for those "very poor brethren" whom the R.M.B.F. takes under its wing. We hope that all who can help and have not yet responded to the appeal will do so at once. Donations marked "Christmas Gifts" should be sent to the Secretary, Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, London, S.W.15.

Viscount Addison, M.D., F.R.C.S., Secretary of State for Dominion Affairs, has received the signal honour of appointment by the King to the Order of the Garter.

[1] *Amer. J. Dis. Child.*, 1945, **70**, 135, 150.
[2] Ibid., 1945, **70**, 148.
[3] *Amer. J. Dis. Child.*, 1945, **70**, 193.
[4] *Nature*, 1945, **156**, 11.

THE UNSTABLE ADOLESCENT GIRL

The following appendix to the Report of the Committee on Psychiatry and the Law has been approved by the British Medical Association and the Magistrates' Association.

I. The Problem

1. The girl with whom the committee is concerned in this investigation is usually between 13 and 17 years of age and she comes before the court on a charge of stealing or because she is out of control, or is in moral danger or in need of care and protection. Superficially she is a "good-time girl," living only for her own personal enjoyment, morally and emotionally unstable, perhaps guilty of sexual misbehaviour, and unamenable to discipline and control. Her appearance in court is followed by an investigation by the probation officer, a stay in a remand home, then perhaps a period in a hostel; and, if that is not successful, she may finally be sent to an approved school, which to her means a sentence of imprisonment.

2. The existence of this type of girl in the community is a serious social problem which at present is being far from satisfactorily handled. The causes and the nature of the problem are not always clearly understood or appreciated by those concerned with such girls. The facilities for dealing with it are inadequate, and those that exist are not always fully utilized. The general attitude towards the girl is often mistaken; little attempt is made to prevent her undesirable behaviour, and the decision of the court or other authority often serves only to increase her difficulty.

3. It is important to recognize that the girl's appearance in court is seldom the result of her first misdemeanour. Investigation usually shows that the girl charged with theft has been stealing for a considerable period and has either succeeded in remaining undetected or her victims have taken no action against her. Similarly in girls charged with civil offences there will usually be found a long-standing history of a tendency to sexual deviation and refusal to accept parental control. Thus, the magistrate has to deal not with first offenders but with girls whose undesirable behaviour and standards of conduct may already be well established.

4. Investigation will usually reveal that the girl's behaviour is the result of interaction between temperament and environment, but always at the root there is some defect of character-structure that is the real cause of her difficulty. It is not necessarily a defect of intellect but rather a degree of social insufficiency. The concept of social deficiency is not yet generally understood, and work on the measurement of social defect has not yet reached the stage for practical adoption, but it appears to the committee that consideration of the problem of the unstable adolescent girl and of the means of dealing with it must take full account of this character defect and of its consequences to the individual and to the community.

The Probation Officer's Findings

5. The emotionally unstable girl appears in all walks of life, but investigations by probation officers and psychiatrists reveal all too often an unfavourable environmental history. Frequently the normal home life is found to have been broken by the death or absence of one or both parents, or else there is such gross overcrowding or such disharmony among the members of the family that ordinary healthy adolescence is wellnigh impossible. The absence of parental love and understanding and control and the lack of stability and security in the home are a serious loss to a girl in her teens, and she may try to find compensations outside the home. She picks up casually a superficial knowledge of the "facts of life," makes undesirable acquaintances, and frequently comes into contact with the law.

6. Again, it may be found that the girl is unhappy in her work. She has left school at the age of 14 and immediately begins work in the first job that offers, whether or not it is suited to her ability or inclinations. Her outlook on life is changed almost overnight from that of a dependent child to that of a grown-up who, as long as she makes her weekly contribution to the family exchequer, may be independent of parental control, may seek her own recreation and friends of either sex, and may spend whatever money she keeps for herself on personal adornment and pleasure. She is not interested in her work, she has no security in her firm, and she may drift from one job to another without striking root.

7. The war must take its share of responsibility. Irregular schooling, evacuation, sleeping in shelters, and bad housing may have accentuated any tendency to moral or emotional instability and may often have provided temptation. But there has also been in recent years, apart from the effects of the war, a general slackening of adult moral standards; the general trend of legislation and propaganda has weakened the sense of parental responsibility; the influence of religious and spiritual values has diminished; and family life has for many people lost much of its attraction and satisfaction. Against such a background it is small wonder that a proportion of girls go astray.

8. In some cases the girl has been brought up in an institution and has never known home life. For the first time she comes into contact with girls who have real homes and she feels her own inferiority in this respect. Having no sense of responsibility towards anyone, she is self-centred and seeks only her own gratification; and, being without knowledge of the value of the money she earns, or of the standards of behaviour in life outside the institution, she frequently finds herself in trouble.

The Psychiatrist's Findings

9. The circumstances mentioned above are those that probation officers find in the environment of girls appearing before the courts, but the psychiatrist can explore more deeply into the cause of the girl's trouble. A bad environment does not necessarily produce delinquency, and, indeed, it is a matter for wonder that large numbers of girls in atrocious situations rise above them and keep straight. The fundamental cause of the delinquency is usually found by the psychiatrist to be some defect of character-structure, not always amounting to a mental defect. It is often found that the undesirable behaviour dates from a period closely associated with the onset of puberty, occasionally starting some months or even a year before its onset.

10. In a minority of cases a degree of mental deficiency will be found. The I.Q. of this group is frequently below 70; if it is above 70 they are apt not to be regarded as mental deficiency cases because of a misinterpretation of the Mental Deficiency Acts. The point which it is necessary to bring out is that *moral* or social deficiency is not necessarily measured in terms of low I.Q. Certification under the Mental Deficiency Acts does not therefore necessarily depend on the I.Q., and these Acts should not be interpreted in this way.

11. In order to prevent any misunderstanding it may perhaps be pointed out that the term "mental deficiency" in the Education Act, 1921, has disappeared from the new Education Act, 1944, and that certification as mentally defective under the former Act has been abolished. Now, under the new Act the degree of disability of mind of a child is based entirely on the degree of educability, and it is only when the disability of mind is of such a nature and extent as to make the child incapable of receiving education at school that the child is reported to the Mental Deficiency Acts Authority as a subject to be dealt with by them. This procedure includes the child who, besides being educationally subnormal, should not be educated with other children either in her own interests or in theirs. It will thus be seen that certification as a mental defective can only be carried out now under the Mental Deficiency Acts.

12. In the case of a girl with an I.Q. of 60 or under the physical development is often retarded, and she appears from the physical point of view to be younger than her age and has a definitely childish manner. This type of mental defective is often facile, friendly, and apparently co-operative, and may even appear to be superficially bright. She frequently chatters away, but soon reveals the fact that she is lacking in self-criticism and that her powers of reasoning and judgment are poor. She does not really appreciate the social implications of her behaviour or the personal consequences.

13. On the emotional side there is a notable deficiency, that is to say, she is lacking in feelings of love either for her parents or anybody else; she has no sense of loyalty either to her home, her school, or employers; she has no sense of duty or

obligation to the community; she is incapable of friendship, although she not infrequently goes about with a girl who is somewhat similar to herself in tastes and temperament but whom she is quite ready to throw over or to blame if her own interests demand it. She is lacking in any kind of ambition; she seldom shows a preference for any particular type of occupation, and is lazy and lacking in drive and initiative. She is impatient of any kind of discipline or control and usually becomes sulky or hostile if she is criticized or thwarted.

14. If she steals she does it so stupidly and childishly that she is nearly always found out. She invariably tries to lie herself out of the difficulty but does it so badly that she is easily detected. If she steals she usually takes money, clothes, or jewellery for her own personal use. Her sexual adventures are also of a very elemental and primitive type. She is completely undiscriminating and will go with any man who makes overtures to her regardless of whether he is personally attractive. Girls of this type seem to be quite unable to visualize the future or to adopt a long-term policy; the gratification of the moment is the limit of their mental horizon.

The Home Life

15. Most of these girls of lowered mentality come from unsatisfactory homes. In many cases the mother is herself a mental defective or mentally subnormal, and quite often the father is of a similar type. The moral standards are frequently low and there is a complete lack of sense of social responsibility or of any spiritual values, so that the child has lacked any influence that might help to modify her own unfavourable innate tendencies. Quite often the parents quarrel or are separated or drink or are work-shy or frankly dishonest, and the girl has had no love from them. She has been ill-nourished and ill-clad and regards her home and her parents with hostility and often with fear. On the other hand in a few cases the home is of quite a good type and the parents and other children satisfactory, the patient being the one black sheep.

16. But mental defectives in terms of intellectual inferiority are in a minority. Most of the unstable girls who come before the courts have an intellectual capacity between 70 and 90, the commonest range being between 74 and 88, but an I.Q. of 100 may be encountered. Unlike the girls with an intelligence quotient of 60 and under, these girls often show precocious physical development, especially in the breasts and hips, and it is not uncommon for a girl of 14 or 15 to appear to be 17 or 18 in her general development. Emotionally they closely resemble those of a lower intelligence, but their actions are much more premeditated and organized, and they show more discrimination in the type of men they go with, deliberately choosing those who have money and, if they can get them, men with some physical attraction. They are cleverer at covering up their traces, and their lies are much more circumstantial and specious. They spend a great deal of time on making up their faces and adorning themselves, though they often do not trouble to wash and are sluttish about their undergarments. Their favourite reading matter consists of the weekly journals dealing with the love life of film stars, and they live in a fantasy world of erotic glamour. Frequently they are a good deal more intelligent and sophisticated than their parents, whom they outwit and despise. They sometimes appear docile and submissive to authority so long as they are definitely in its power, but their promises are like piecrust, and they are, as a rule, only waiting for a chance to get free in order to resume their former way of life.

17. These girls very often come from a broken home, but on the whole the parents tend to be of a higher mental level than those of the defective girls, though their moral standards are frequently very low and the home background is lacking in comfort and affection. Another type of home which may be productive of cases of this kind is that which is dominated by a very narrow and rigid set of religious values. In a certain number of cases, however, the home is quite satisfactory and the parents are decent intelligent people who have done their best to bring up their family to be honest and responsible citizens.

18. It is usually found that there has been no proper and adequate sex education.

19. There is a special type of girl which should be recognized. She is over-sexual in her behaviour and easily picked up, but is essentially over-ingenuous, over-trusting, and over-credulous where admiration from men and what she thinks is romance are concerned. She easily imagines herself in love, but in fact has a less than average capacity for the non-sexual expression of affection and for any permanent love. Her behaviour, apart from her sexual behaviour, is not usually either asocial or antisocial—at any rate to begin with—consequently she is not a moral defective in terms of the Mental Deficiency Acts. Her intelligence level is not characteristic and may be high or low, though many seen in court are of low intelligence. She shows in many ways a general emotional immaturity, but this is often masked by the pseudo-sophisticated air lent by her sexuality.

This type of girl may easily acquire venereal disease or produce illegitimate children and may develop into a true nymphomaniac—i.e., a person who feels (and usually obeys) a very strong inner urge to behave sexually with any man who attracts her.

Such cases usually come under notice in adolescence but may not be discovered until they are in the early twenties. They are primarily a medical problem, and, if not of too low intelligence or too antisocial in other ways, can be helped by psychological treatment, which must be prolonged and often begin under residential supervision, which may suffice in itself. Every possible effort should be made to persuade such girls to co-operate voluntarily and undergo residential treatment. Punishment alone is unlikely to have a favourable effect on them.

II. Present Methods of Dealing with the Problem

20. Under the Children and Young Persons Act only girls under the age of 17 can be brought before the court as in need of care or protection, although the year or two after that age often prove the most difficult and dangerous for the emotionally unstable girl. The facilities available to the juvenile courts in dealing with her are entirely inadequate, especially in regard to approved homes, hostels, and lodgings. A member of the committee has described in the following words the probable experiences of the girl after her appearance in court:

"When she appears in court—either as being in moral danger or for petty theft—she may be put under the supervision of a probation officer and will really intend to settle down at home if she is given a chance by both parent and court to do so. As she has never been taught that she has any obligations in return for her 'rights,' she will resent any attempt to control her undisciplined way of life and will probably completely disappear for several days after the first row at home. When she is found again she has nearly always had sex relations with one or two men, sometimes more.

"Then will follow all the emotionally upsetting series of events—the full statement of her story to the women police, the stay in the remand home exchanging stories with her companions there, perhaps the interview with the psychiatrist—too superficial to help either girl or magistrate—the medical tests, and the appearance again in court with the gnawing anxiety as to what 'They' will do with her. This time perhaps she is given a chance in a hostel: owing to the shortage of the places it will have to be chosen by a harassed probation officer on account of a vacancy more than because of its suitability. The probation officer will assure her she will try and find somewhere else if she is really unhappy and will watch anxiously to see if she settles down. As before a short cut to everything will be wanted; and as these hostels so often have not the homely atmosphere and friendly welcome both girl and probation officer are trying to find, it is often only a question of a few weeks before she is off again. 'Too much religion,' 'Too many rules,' 'Didn't like the type of girl,' are some of the reasons afterwards given when she again appears in court. This time it will almost certainly be an 'approved school,' and a sobbing or defiant girl is led out of court feeling the worst that could happen has fallen on her. She will not go direct to the school but back to the remand home to await a vacancy in a school chosen by the Home Office. If the Home Office, on reading her reports, consider she is likely to respond to 'being classified,' she will be sent—sometimes after a wait of 4 or 5 months in a remand home—to one of the two classifying centres for girls. Here she will undergo tests of every kind, get perhaps a little more physical exercise than in the remand home, have to make new friends, get used to a new staff; and after 10 to 12 weeks of this, off she goes at last to her school."

21. Such an experience is obviously unsettling to a girl in her teens already emotionally unstable, and when her period of detention is over she returns to exactly the same environment

and influences that were probably at least partly responsible for her misconduct.

22. Not only are facilities for dealing with these girls inadequate, but those that are available are often of the wrong kind. It is wrong to treat as guilty of an offence a girl who needs and cannot find care and protection. An emotionally unstable girl requires a special type of remand home. Even when a period in an institution is the right course for the particular girl, care is not always taken to ensure that the right type of institution is chosen or that she is not placed indiscriminately among other more normal types of resident. Such lack of care is often responsible for unsatisfactory results, for it means that the girl's special condition and needs do not receive proper recognition and treatment. In short, existing methods of handling these girls are often likely to exacerbate rather than improve their tendency to misconduct.

23. The facilities that are available are not always used to the fullest extent. Medical officers of health, for example, are frequently unwilling to certify girls as mentally deficient even when this course would be the most appropriate way of dealing with them. There is also the complaint that there is insufficient co-operation between statutory and voluntary bodies.

24. Many girls could be helped to resolve their own difficulties of adjustment by psychiatric guidance, but the facilities available at out-patient departments or at psychiatric clinics are entirely inadequate and the number of psychiatrists available is far too few.

III. The Remedy

25. In order to deal effectively with these girls there must be, first, a fuller recognition of the general nature and causes of their misbehaviour and of the objects of treatment; secondly, there must be more facilities and skilled staff for the investigation and treatment of individual cases; and, thirdly, more clinics and institutions for the purpose of treatment and control must be provided.

26. Obviously, under the first heading will come the improvement of environment. Overcrowding, bad housing, and malnutrition must be eliminated. The raising of the school age, with the consequent longer period of school discipline, may help, and so should the effective application of the Ministry of Labour's schemes for guiding young people into suitable employment. In the latter schemes the assistance of a psychiatrist or a child guidance clinic may be helpful in finding the right type of employment for girls who appear to be emotionally unstable. Often all that such a girl needs is some activity that will bring variety, colour, and interest into her drab life, and this is just what the unimaginative decisions of officials fail to realize. There are many activities and outlets, whether as paid employment or as leisure time hobbies, that could be found or provided to help these girls to readjust themselves.

27. There are other social means of preventing the development of sexual and social misconduct, such as the strengthening of the ties between home and school, and the encouragement of the work of voluntary societies, and youth organizations such as clubs.

28. There must be more facilities and staff for the investigation of individual cases, apart from inquiries into environment. A full and skilled investigation requires the services of a psychiatrist. The present provision of psychiatrists is quite inadequate for full investigation of all the cases needing inquiry. Psychiatric investigation should take into account the girl's personality, temperament, intellectual capacity, sexual propensity, and the interaction between character and environment. Emphasis needs to be placed on the girl's social capacity rather than on her intelligence quotient. For this purpose the kind of research at present being conducted in Bristol and elsewhere in the assessment and classification of social deficiency should receive every encouragement.

29. Long-term treatment or at least prolonged supervision will be required by most of the girls, and it must be recognized that the efficient handling of a case involves a deliberate search for the best method of treatment for the particular girl concerned. Many more psychiatrists are required for investigations at child guidance clinics, observation centres, and out-patient departments, and for visiting the girls in their schools and institutions.

30. The latter necessity raises an important question of organization, for there will not for a long time be sufficient psychiatrists to provide a psychiatric service for all the schools and institutions to which these girls may be sent. It is suggested, therefore, that in the meantime particular approved schools should be selected for the purpose of receiving emotionally unstable girls in urgent need of treatment, and arrangements should be made for these schools to be visited regularly by psychiatrists who will supervise the progress of the individual girls and also advise the lay staff on matters affecting the treatment and control of the patients. A psychiatrist undertaking this work should hold a part-time appointment only, for it is undesirable from the point of view of his own skill that he should devote himself to this single aspect of psychiatry and from the point of view of the girl that he should be identified with the official control of her life.

31. The psychiatric treatment of emotionally unstable girls is extremely important, for the majority respond to the individual approach of a doctor who understands and sympathizes with their personal difficulties and emotional conflicts. The psychiatrist has the advantage of being an understanding outside person to whom the patient can talk freely with the knowledge that her confidences will be respected and that the doctor is there to consider her personal interests. No one else in her environment can qualify for this role, and yet it is just that relationship that the emotionally unstable adolescent girl needs. The psychiatrist can help her to build up a series of values which are socially acceptable and also acceptable to the girl herself. The chief difficulty he has to overcome is, of course, that the life which she has chosen, with its self-indulgence and emotional gratification, is far more attractive to her than anything he can offer.

32. The lay staff in charge of schools, hostels, or colonies to which this type of girl may be sent should be specially selected and trained. It cannot be expected that such girls will respond to treatment unless the persons in charge of them possess qualities of understanding, sympathy, and patience and have a real love for the girls in their care. People with these qualities are unfortunately few and far between, and at the present time methods and standards of training and preparation for the holding of such posts are entirely inadequate. Persons with a natural flair for this kind of work are needed, but they must also have adequate training, for, from the psychological point of view, it is often the well-meaning but ignorant people who do most harm.

33. Greater facilities are required for dealing with such girls. For girls from school-leaving age there should be greater provision of homes, hostels, and suitable lodgings under supervision. Certification under the Mental Deficiency Acts may be possible and the best course for certain types. Others are often better under the influence of an approved school or an appropriate hostel. For those of compulsory school age the provision of boarding special schools under the Education Act of 1944 is a solution.

34. Facilities required for the treatment of emotionally unstable girls are of several types. The average remand home is quite unable to cope with them in the early days of their control. Observation centres are badly needed for their reception while investigations are being made, by both the psychiatrist and the social worker. The necessity for long-term treatment for the emotionally unstable girl must be recognized. For the most part they are not likely to respond to a short course of discipline or training, and in most cases it is quite hopeless to try to treat them in a psychiatric out-patient department or child guidance clinic. They need a prolonged stay of perhaps two or three years in a suitable school or hostel or institution run on the colony system, where they would receive training and discipline combined with psychiatric treatment. In many ways girls of higher intelligence are more dangerous to the community than girls of a lower intellectual capacity. If they marry and have children they usually make bad wives and bad parents; and, because of their emotional immaturity and instability, they do not develop until very late, if at all, the capacity for maternal love or a sense of parental responsibility. At the present time it is almost impossible to keep girls under control long enough for any constructive treatment to be effective.

35. A most important need is for proper and adequate sex education and the training of adolescents in handling their emotional problems. This, as a matter of principle, should come from the parents, but if they are not capable of dealing satisfactorily with this essential aspect of the child's education it should be the responsibility of the education authority.

IV. Aftercare

36. The period after discharge from an institution or approved school is extremely critical. There are bound to be difficulties of adjustment to normal life. It is essential that these girls should be given every possible help and protection at this stage if they are to avoid a relapse. Facilities for adequate aftercare must therefore be provided. Magistrates should have the power to require that delinquents should place themselves under the care of specially appointed social welfare officers for a period of at least 12 months after discharge.

37. It is felt that the aftercare of girls should start almost as soon as they enter the approved school or institution, and that the aftercare officer should, all the time that the girl is away, be in close contact with the home, using her influence to reform the home while the girl is being reformed. Reconciliations between parents and training the mother in a friendly way can be undertaken during this period. Thus, when the girl leaves, the aftercare officer should already be the friend of both the girl herself and her relatives at home.

38. There is urgent need that more hostels under a hostel warden should be provided in conjunction with approved schools. Many girls would benefit by a short transition period in such a hostel before returning to their own homes. This would enable the girl to prove that she can work steadily and make a right use of her freedom under supervision before making her new start in the wider world.

V. The Limitations of Treatment

39. When all has been done that it is possible to do there will inevitably remain some girls for whom all help and treatment seem useless. In them the defect of character or of social capacity is so fundamental as to hold out little hope of transforming them into satisfactory members of society. They have neither the capacity nor the will to co-operate in anything that is done for them, and the moment they are liberated from control they will go back to their former bad ways.

40. It is important that this limitation of treatment should be recognized, for it is the failure of psychiatry to effect cures in these all but impossible cases that has tended to bring discredit upon psychiatrists and those who believe that the right method of treating these offenders is by methods aiming at reclamation rather than retribution. But the committee believes that when there are sufficient institutions, staffed by properly trained and experienced persons, and when they have had an opportunity to show what they can do after a sufficiently long period of years, it will be seen that the psychiatric approach to the problem is the right one and is successful in the great majority of cases, and that it is in the best interests of the girls themselves and of the community.

FRANCIS AMORY SEPTENNIAL PRIZE

In compliance with the terms of a gift under the will of the late Francis Amory of Beverly, Massachusetts, the American Academy of Arts and Sciences offers a substantial prize for outstanding work addressed to the alleviation or cure of diseases affecting human reproductive organs. The gift provides a fund the income of which may be awarded at seven-year intervals "as a prize and gold medal, or other token of honour or merit," to any individual or individuals for work of "extraordinary or exceptional merit" in this field. In case there has appeared work of a quality to warrant it the next award will be made in 1947. Awards will be made for what in the judgment of the committee on the Amory Fund appears to be the most outstanding contribution or contributions in the field as outlined and as based on published work and recognized accomplishment for the current seven-year period.

No formal applications and no essays or treatises from individuals are solicited, but suggestions will be welcome from any appropriate source that will be of aid to the committee in making a wise selection.

Recommendations may be addressed to the secretary, Amory Fund Committee, American Academy of Arts and Sciences, 28 Newbury Street, Boston, Massachusetts.

STORIES OF ENDOCRINE RESEARCH

THE ADDISON LECTURE

The first Addison Lecture was delivered at Guy's Hospital on Monday, Dec. 2, by Prof. E. C. Dodds, with Lord Cunliffe, the treasurer of the hospital, in the chair. The objects of the lecture, which has been established through a gift to the medical school of an old Guy's student, Dr. Harry Spon, are to commemorate the fundamental contributions to endocrinology made by Thomas Addison at Guy's in the middle of the last century; to indicate the importance with which this rapidly developing branch of medicine is regarded; to stimulate the interest of the student by introducing to him men with whose names and work he is already familiar; and to pay a compliment to certain distinguished endocrinologists by inviting them to deliver the lecture.

Prof. Dodds chose "Stories of Endocrine Research" as his title. Taking endocrinology as an example he reviewed various techniques or "disciplines" of research. He dealt first with the "Addisonian" or "Guy's" method. By careful clinical observation correlated with shrewd analysis of post-mortem findings it was possible for Thomas Addison to describe in 1855 the disease which was subsequently called after him, and to indicate that it was due to destruction of the suprarenal glands. By similar methods Sir William Gull in 1873 was able to describe the syndrome of myxoedema and associate it with the cretinism of infancy due to thyroid failure. These two great Guy's men were rather similar in character, both being forceful men of great personality. In clinical matters they were profoundly wise and almost tediously thorough. Addison, for instance, would remain at the bedside, doggedly determined to trace out the disease to its very source, for a period which constantly wearied the class and his attendant friends. Both men were greatly helped by Benjamin Harrison, the treasurer of Guy's at that time.

Confirmation and Synthesis

The fundamental observations of Addison were confirmed by Brown-Séquard on animals from which the suprarenals were removed. In 1931 Swingle and Pfiffner were able to maintain life in adrenalectomized animals by means of a crude cortical extract, and to-day it was possible to restore to health patients suffering from Addison's disease by using the synthetic hormone desoxycorticosterone.

Gull's observations were confirmed by Ord, who gave the cretinoid condition the name of "myxoedema," and it was reported by Kocher that this state was liable to supervene after complete thyroidectomy. In 1891 George Murray treated a case of myxoedema with an extract of sheep's thyroid; in 1915 thyroxine was isolated in crystalline form by Kendall, and it was synthesized in 1927 by Harington and Barger.

Often the method of clinical observation hung fire, and this was shown in the case of Thomas Willis, who in 1681 described the sweet taste of the urine in diabetes. Little progress was made with this subject for two centuries, until von Mering and Minkowski made the chance discovery that removal of the pancreas produced diabetes. Six more years elapsed before in 1895 it was observed that ligature of the pancreatic duct produced degeneration of the gland but not diabetes. It was this observation that prompted Banting in 1920 to attempt to make an extract of the islet tissue after ligaturing the duct in order to destroy the enzymes which might be antagonistic to the islet hormone. This planned experiment by Banting and Best led to the discovery of insulin.

Incidental Discovery

In sharp contrast was the type of research in which a man set out to discover one thing and found out something else. The isolation of vitamin C by Szent-Györgyi was an example, for he set out to study biological oxidation, which he considered to be a function of the adrenal cortex. Having isolated from it the powerful reducing substance "hexuronic acid," he later showed that it had the antiscorbutic properties of citrous fruit extracts and was, in fact, ascorbic acid.

As his last example of how scientific discoveries were made Prof. Dodds chose the story of the sex hormones. With the effects of castration known for years, and the description by

Allen and Doisy of a simple method of assaying ovarian extract by the vaginal smear technique, the stage was set for the isolation of the oestrogenic hormone. At about this time the fundamental facts of sterol chemistry were being elucidated, and the structure of the cyclo-penteno-phenanthrene ring system was finally elucidated by Rosenheim and King. In 1927 Aschheim and Zondek discovered the urine in pregnancy to be a concentrated source of oestrogenic substances, and from this fluid, with the essential information provided by Windaus and Wieland and by Rosenheim and King, five oestrogenic compounds were isolated almost simultaneously by Butenandt, Doisy, Marrian, and Girard in 1932. From the fact that at least five separate oestrogens had been isolated from this sterol structure it occurred to Dodds to see how specific the molecular structure was for oestrogenic activity. After a while it was found that the phenanthrene structure was not essential, and anol, a simple benzene compound, was found to have an oestrogenic potency which appeared to be high. On repetition of the work, however, it was realized that the activity of the original batch of anol was due to a contaminant. Pursuing the work in collaboration with Sir Robert Robinson, the compound stilboestrol was finally made and found to have a very high degree of oestrogenic potency.

In concluding his lecture Prof. Dodds emphasized that research was not only for heaven-sent geniuses—an impression which was largely due to the invariable scientific practice of writing the paper backwards, which gave the research an appearance of being a carefully thought out, orderly procedure. In fact, however, the research was done by a series of blundering steps in which the worker was rather like someone in a dark room scrambling for the switch and tripping over the furniture. When he had once found the switch and turned on the light he was able to arrange the furniture in an orderly manner.

HEALTH SERVICES IN PALESTINE

Prof. Samson Wright, who visited Palestine in the earlier part of the present year, gave a lecture at Palestine House, London, on Nov. 28 on the health services in a country which he described as straddling between the patriarchal period and the twentieth century. During the twenty-five years of the mandate Palestine has become Westernized in places and has moved forward everywhere, but it still comprises an extraordinary mixture of ancient and modern. Its population is under two millions, including 600,000 Jews and twice as many Arabs. Each of these races has increased roughly by half during the last quarter of a century, but the Arab increase is largely due to high natural fertility and the Jewish increase largely to immigration. The Palestinian budget is over 20 million pounds, but the allocation of the Palestine Government for health services is only some £600,000, with an estimate of £800,000 for the coming year. These figures are much higher than in the earlier years of the mandate, and have risen steeply during the war, but they are still comparatively small. The Government hospital service, according to Prof. Wright, has in the main been directed to the service of the Arab population. In the Government hospital in Jerusalem the overwhelming majority of the patients and a large proportion of the staff are Arab. The Jews have more or less developed their own services, and are spending on them for the current year over two million pounds, less than £200,000 of which is contributed from outside Palestine.

Prof. Wright gave some vital statistics. In 1925 the Jewish death rate was 14 per thousand; it had steadily fallen and was now 7 per thousand. The Arab (Moslem) death rate had fallen during the same period from 29 to 17. Jewish infant mortality had fallen since 1925 from 132 per thousand to 56, and Moslem from about 200 to 100. Intestinal infections have decreased, and there has been a great fall in the incidence of trachoma, which immediately after the war of 1914–18 was some 30%, and now is a small fraction of 1%.

Prof. Wright described the curious form of social health insurance obtaining in Palestine. It is run by the National Federation of Labour, a Jewish trade union organization instituted at the beginning of the mandate. In 1944 the membership was 135,000, and as the arrangements include the breadwinner's family it follows that a substantial proportion of Jewish people are provided for in this way. Last year £50,000 was paid by the Government to the sick fund of this organization, which has built its own clinics and dispensaries and employs its own doctors. The doctors in this organization are dissatisfied with their salaries. A practitioner of the consultant class receives only about £700 a year, which, taking into account certain deductions that are made and the high cost of living in Palestine, is equivalent to no more than £500 in this country. But Palestine has a surplus of doctors, and if a man resigns there are two ready to step into his shoes. It is said to be impossible to get the Arabs to agree to tax themselves for health services. The most desirable thing for the health of Palestine would be to obtain Arab contributions to health services proportional to those which the Jews are making.

Prof. Wright painted a rather sombre picture of some of the general health and social conditions in Palestine. Overcrowding is rife. In this country one family in a room is something of a scandal; in Palestine it is regarded as a lucky family. There is a good deal of malnutrition, particularly in the towns. Hospital accommodation is very inadequate for certain classes of patients, for example the tuberculous. The most crying need is for accommodation for mental cases. Unless the mentally disordered person is likely to murder his neighbour he is allowed to remain in the family and the community. Prof. Wright had also been distressed to find, even in a small city like Jerusalem (200,000 population), how little contact there was between the British authorities running their hospital and the Jewish authorities running theirs only ten minutes' ride away.

"REMPLOY"

The Disabled Persons' Employment Corporation, Ltd., a non-profit-making organization, was set up by Mr. Ernest Bevin when Minister of Labour and National Service to provide employment in factories (and in homes for the home-bound) for all classes of registered disabled persons who are so severely handicapped as to be unable to obtain employment otherwise. It is establishing factories which are known as "Remploy" factories. The first was opened at Bridgend, Glamorgan, on Nov. 27, 1946, and the second at Salford on Dec. 9. The Corporation anticipates that eight factories will be operating by next April and a further forty in the ensuing twelve months. It is hoped to include the following northern towns: Oldham, Leeds, Sheffield, Wakefield, Bolton, Preston, and perhaps Burnley, Bradford, and Wallasey. Wages are paid during instruction as well as for subsequent employment on productive work—the full trade rate being applicable to competent persons. The factories' products bear the name "Remploy."

Special factories for the tuberculous will be established where needed, and it is hoped that one for post-sanatorium cases will be functioning in twelve to eighteen months' time. Special provision will be made for epileptics, but at the moment the problem is complicated by the reluctance of some of those so disabled to register themselves. The factories will supply raw materials, tools, and instruction to home-workers, so that in time a chain of "cottage industries" may be built up.

CARE OF THE ELDERLY

A conference on the care of old people arranged by the National Old People's Welfare Committee, in association with the National Council of Social Service, was held on Nov. 29 and 30 and attended by about 420 delegates.

The Rt. Hon. James Griffiths, Minister of National Insurance, said that increased old age pensions had been paid from the first week in October, when there were 4,100,000 pensioners. About 1,900,000 old folk who were previously receiving pensions at the basic rate of ten shillings or twenty shillings (married couples) a week were now receiving pensions at the twenty-six shilling or forty-two shilling rate. The effect of these higher pension rates was to increase the expenditure on old age pensions from about £127 millions to about £268 millions a year.

Sir Ernest Rock Carling referred to the National Health Service Act and urged that the old people should be considered. In old age the dividing line between health and

sickness was very narrow, and rehabilitation should be studied in order that beds might be freed. Adequate description of the distressing circumstances of old people in many institutions would need the pen of a new Dickens, and tribute should be paid to the staffs who worked so courageously in distressing surroundings. Dr. Marjory Warren gave a challenging address and contrasted the usual dependence of the aged with the Chinese custom of giving to age the greatest respect, and called for "a change of heart." The problem was not one of poverty, as the aged included all classes in the community. People were living longer, houses and domestic help were much more difficult to obtain, and our mode of life had changed, with a greater instability and mobility of the family, faster transport, wireless, and the different position of women. Children should be taught to respect age, and old people should be regarded as the head of families for as long as possible. The question "Are the old worth preserving?" could be answered on ethical, educational, and economic grounds. The broad medical principles were: full medical and nursing care; long-term treatment of sickness in suitable surroundings; homes with specially trained personnel for all types, including the bedridden; research into diseases of the aged and ageing; and social workers to banish want, loneliness, monotony, and boredom. This called for the unification of authorities and societies interested in the problem, and for the segregation of types of old people needing different treatment.

A MEDICAL PLAY

Mr. Warren Chetham Strode will be remembered for his recent successful play *The Guinea Pig*. His new play, *The Gleam*, at the Globe Theatre, is successful, among other things, in demonstrating that whatever else it may do the future National Health Service Act does not make good theatre. The play is well acted and adequately produced. Mr. John Robinson and Mr. Hugh Kelly, as an established and a newly qualified doctor respectively, give performances which are much more convincing than the usual stage presentations of medical men, though there are some minor medical errors.

What the author has attempted to do is to dramatize the future of national planning, particularly as it relates to the National Health Service. There is much discussion of the difficulties and the disadvantages of the new Act. There is a health centre as it might be in 1949. The doctor who is the principal character believes in the principles underlying the scheme but finds his professional freedom sorely curtailed. There are similar conflicts in the background. Mr. Wyndham Goldie hits off extremely well the reaction of a self-made man when the town-planning of which he approves involves the demolition of his own house. Mr. Harry Ross, as a local councillor and transport contractor, believes implicitly in the nationalization of medicine and in town-planning but objects vehemently to the nationalization of transport. The author has given his best lines to the less important characters, and much of the discussion that goes on has an air of unreality about it. His final answer to the problem of reconciling individual medical freedom with chromium-plated health centres and streamlined planning is that the young doctor, who at one stage is bent on abandoning medicine and turning to farming in Kenya, should join the general practitioner he admires in trying to work what is good in the Service and resist what is bad.

Active preparations are being made for the issue of a third edition of the *World List of Scientific Periodicals*. The last edition of this invaluable scientific reference work, issued in 1934 and covering the years 1900–33, is now out of print though still in constant demand. It contains upwards of 33,000 titles of journals and includes the holdings of some 180 libraries in Great Britain and Ireland. The new edition, which is designed to include all the scientific and technical periodicals that appeared during the period 1900–47 as well as the holdings of additional libraries, will therefore be considerably larger. Librarians are being asked to co-operate as before by sending particulars of all those journals on their shelves that do not appear in the second edition or are shown there as having no location in this country, to: The Secretary, World List of Scientific Periodicals, c/o The Zoological Society of London, Regent's Park, London, N.W.8. Further information may be obtained from this office.

Reports of Societies

LATE RESULTS OF PARTIAL GASTRECTOMY

At a meeting of the Liverpool Medical Institution on Nov. 7, with Mr. J. B. OLDHAM (Vice-President) in the chair, both the surgical and the medical aspects on operation for peptic ulcer were examined.

Mr. KIRK WILSON mentioned the almost insuperable difficulties in continuing the usual follow-up during the war years, but quoted a personal and consecutive series of 148 cases of partial gastrectomies done for simple peptic ulceration in the years 1934–9 inclusive. In the series 104 had a gastric, 40 a duodenal, and four a jejunal ulcer. Three of the jejunal ulcer cases had gastro-colic fistulae, and in four of the gastric ulcer cases a gastro-jejunostomy had to be undone as the first step in the operation. Over 50% of the duodenal ulcer patients were *under* 40 years of age, while 65% of the gastric patients were *over* 40. During the same period, of 117 cases of carcinoma of the stomach, 48 were submitted to gastrectomy. In the high gastric ulcer, the size of the crater, the degree of penetration and fixation, and the failure to respond to medical treatment were the main indications for operation. Ulcers of the pyloric antrum and canal were treated surgically without undue delay on account of their tendency to undergo malignant metaplasia. The main indications for operation in duodenal ulcer were repeated perforations and recurrence of symptoms after several courses of intensive medical treatment in hospital. The Polya-Moynihan operation was done for 44 patients, the Hofmeister operation for 45, and the "physiological" for 59. The over-all mortality was 8%. In exactly half of these deaths necropsy showed that the cause of death was pneumonia and that healing had occurred without infection in the peritoneal cavity. One pulmonary embolus was recorded, and in three cases in which permission for a post-mortem examination was unobtainable it was suspected that a leak from the duodenal stump had occurred. In more recent series the mortality and morbidity had been much reduced by (1) more intensive pre-operative preparation to correct minor degrees of anaemia and hypoproteinaemia, and (2) the recent phenomenal advances in anaesthesia. The relaxation obtained with *d*-tubocurarine chloride compared very favourably with that produced by a perfect spinal anaesthetic, and after this drug chest complications had not caused any anxiety. The importance of medical supervision in the more remote post-operative period and the value of a properly organized continuation clinic were emphasized.

Medical Point of View

Dr. ROBERT KEMP said that he hoped there would be no "surgery *versus* medicine" trend in the discussion, for the surgeon operated only on medical failures and the physician only saw the bad results of surgery. The physician must have clear-cut indications in his own mind, must know the risks and drawbacks of operation, and must follow up the late results. In most complicated ulcers and many gastric ulcers the indications for partial gastrectomy were clear, but in duodenal ulcer it was an individual clinical decision as to when the lesion was beyond permanent help from medical treatment. Apart from the immediate post-operative risks there were those of later stomal ulcer, pulmonary tuberculosis, anaemia, small stomach and dumping, with lassitude, malnutrition, gastritis in the stump, and the need for further dieting. From a series of 148 consecutive partial gastrectomies done by Mr. Kirk Wilson between 1934 and 1939 71 patients traced in 1946 were reported as 55% excellent results, on full work and full diet, and with no significant symptoms; 28% showed good result, full work and good health, but needing a modified diet; 17% showed fair result, in that despite dieting they still had some symptoms and lost some time from work. In every patient seen there had been a definite improvement on the pre-operative state. The results in duodenal ulcer cases were particularly good, but despite this it was still the physician's duty to keep his patient to a regime strict enough to obviate the need for surgery. If, however, he failed in this the operation should be done under optimum conditions with full preparation and convalescence in the medical wards.

Analysis of a Further Series

Mr. COSBIE ROSS discussed a series of 160 consecutive gastrectomies. Eight of these patients (5%) died as a result of the operation: three from myocardial failure, three from lobar pneumonia, one from pulmonary embolus, and one during the operation. Three patients died at a later date: one from carcinoma of the oesophagus, one from carcinoma developing in the stomach sac, and a third from a perforated stomal ulcer a year after gastrectomy, previous to which he had perforated on two occasions. Of the 55 cases followed up, 47 were extremely grateful, and of the remaining eight, one had advanced phthisis, one had syringomyelia, and six, although improved, had mild dyspeptic symptoms. No one complained of even a moderate degree of pain. The short afferent loop in making the anastomosis was important. Recent experiments had shown that the daily intramuscular injection of 30 mg. of histamine-base in beeswax into laboratory animals caused a torrent of acid secretion, and in gastrectomised dogs always produced a stomal ulcer when a long afferent loop was used (never with a short one); and the anastomosis should be retrocolic close to the duodeno-jejunal junction.

Series from University Department of Surgery

Mr. A. CLIFFORD BREWER reported on some 362 partial gastrectomies for duodenal ulceration. One fact was predominant: subtotal gastrectomy, with removal of the whole pylorus and combined with the use of a Hofmeister stoma, yielded excellent results, but results were by no means so good when the pylorus was left behind. A two-stage operation in difficult cases appeared very satisfactory so long as the second stage followed within twelve weeks.

IMMUNIZATION WITH HUMAN BLOOD DERIVATIVES

Dr. WILLIAM GUNN delivered his presidential address before the Fever Group of the Society of Medical Officers of Health on Nov. 8, dealing with the advances during the last twenty years. He briefly described the various methods of withdrawing, harvesting, and storing plasma and serum. The loss of protective potency of serum with age, appreciable in less than a year even when stored at 4° C. and due apparently in large measure to the presence of denaturing enzymes, had been countered by freeze-drying *in vacuo*, whereby further loss was probably averted as in the fourteen-year-old sample exhibited. As preservatives tended to interfere with the drying process, various substances had been tried, with the result that phenol, originally selected as the one of choice, was retained as possessing the best all-round antiseptic action; the time taken in drying was only slightly lengthened provided that the ratio of the total volume to the surface area was kept low. The only real disadvantage incidental to the use of phenol was that it could not be added to serum in stronger concentration than 5% without causing coagulation of the proteins.

Homologous Serum Jaundice

No proved cases of homologous serum jaundice had been encountered in some 20,000 administrations, but the long incubation period and the difficulties of follow-up in a large area such as London had to be considered. In recent years donors had been supervised for four to five months after the withdrawal of blood, but sub- or non-icteric hepatitis remained a possibility which even repeated blood counts and van den Bergh tests might fail to demonstrate. There was insufficient evidence to show that antiseptics, drying, or even heating to 57° C. for 4 hours, as had been done on gamma globulin specially stabilized for this purpose, were effective in neutralizing the causative agent in homologous serum jaundice; probably the complicated physico-chemical processes involved in the separation of human plasma proteins into their constituent fractions alone sufficed.

A strict age- or weight-adjusted dosage (e.g., 0.1 ml. per 1 lb. (0.45 kg.) bodyweight recommended for gamma globulin) did not agree entirely with common experience. At ages 0–1 year and 3 years upwards the effectiveness of the prophylactic against measles tended to be artificially enhanced compared with the relatively susceptible 1–3 years group, and something over the average dosage was needed if protection was regarded as imperative.

Convalescent Sera

The appropriate dose of convalescent rubella serum which had been collected for purposes of prevention in women in the early months of pregnancy was not yet determined, but probably lay between 10 and 20 ml., depending on the interval between the date of exposure and time of injection. Preliminary trials had shown the protective titre to be rather lower than was usually found in the measles antiserum, possibly because the infection stimulus was less intense. The gamma globulin fraction would naturally be much more effective, approximately twenty-five times more potent, as had been reported in trials of mumps convalescent serum by S. S. Gellis, A. C. McGuinness, and M. Peters (*Amer. J. med. Sci.*, 1945, **210**, 661).

PROPHYLAXIS OF ERYTHROBLASTOSIS FOETALIS

At a meeting of the North of England Obstetrical and Gynaecological Society, held at Sheffield on Nov. 1, Dr. C. C. BOWLEY said that the erythroblastotic infant arose once in less than 300 labours, and had a mortality rate of nearly 80% if untreated, while 10% of those infants who did recover were affected by central nervous system lesions or hepato-splenomegaly. Erythroblastosis foetalis should be anticipated by the routine Rh typing of the blood of every pregnant woman, and where the woman was Rh-negative an examination of the blood for the presence of atypical agglutinins should be carried out at the eighth month in primigravidae and at least once before the eighth month in multigravidae. Previous transfusion should be considered as having the same effect as a pregnancy, and all emergency transfusions should be carried out with Rh-negative blood. On the discovery of atypical agglutinins their titre should be determined and re-determined each month until delivery, and monthly titres were needed in every multipara with a definite history of children affected by erythroblastosis foetalis. Vitamin K should be given to the Rh-negative mother before delivery. It was effective if taken orally, combined with the administration of bile salts to break up the fat vehicle and to obtain maximum absorption as little as four hours before delivery; when given to the child it should be in a watery solution and administered by intramuscular injections. Blood transfusion with a fresh Rh-negative red-cell-concentrate should be effected early.

A meeting of the Chelsea Clinical Society was held at the South Kensington Hotel on Oct. 8, the title of Dr. Ronald Jarman's presidential address being "Modern Anaesthesia." Dr. Jarman gave a comprehensive review of the history and latest developments in his specialty, and an interesting discussion followed in which many members joined, these including Dr. Archibald Marston, Dr. Hancock, Mr. Ivor Back, Mr. Michael Smythe, and Dr. Carnac Rivett.

The 44th annual meeting of the Medical and Dental Defence Union of Scotland was held recently in Glasgow, with Prof. T. K. Monro as president. The report of the council showed that during the past year the membership had increased by 279, and the number of members on the register was now 5,742. The financial position continued to be strengthened, notwithstanding the waiving of subscriptions from members in H.M. Forces—a concession which is to continue for the current year. It was stated that cases continue to arise in which the lack of proper records makes the defence of claims more difficult. This is specially noticeable where casual dental patients are concerned. The Union impresses on its members the need for careful records of consultations, treatments, appointments, and telephone calls, together with all information on the progress of cases. In particular, if a certain line of treatment is advised, but rejected by the patient, the fact should be noted. Such records, being contemporary evidence of what transpired, are of great value in the event of a dispute arising at a later date. The Union participates in the work of a joint co-ordinating committee with the two defence societies which have their headquarters in London.

Correspondence

Statistics in the British Zone

SIR,—On behalf of unofficial vital statisticians I thank you for your two articles on conditions in the British Zone in Germany (Nov. 30).

If one averages the death rates of your Table II on page 827 we have 14.3 per 1,000. The rate of mortality in the first six months of a calendar year is higher than in the second six months, so this is (other things equal) an overestimate, but we may take it. As you point out, gross rates of mortality of that order were common enough in England and Wales a generation ago. But then the rate of infant mortality was often higher than that recorded for Germany in the first six months of 1946 (99.5 per 1,000 live births). In 1912, however, the rate of infant mortality in England and Wales was 95 per 1,000 live births and the gross rate of mortality 13.3 per 1,000 living. This, however, cannot properly be compared with the German figure because in 1912 the birth rate in England and Wales was 23.8 per 1,000 while in Germany in 1946 (six months) it was only 14.6. Had the latter been the rate in England and Wales in 1912 the death rate would have been about 12.6 instead of 13.3. It is also possible that in general the age and sex constitution of the German population was more favourable to low mortality than that of England and Wales a generation ago, because the fall in the birth rate in Germany lagged behind that in England and Wales, and so the optimum constitution may have been reached later. I do not know.

On the other hand there are factors which would artificially raise the death rate in Germany. (1) Many men of military age are prisoners of war; their absence may not be compensated by an influx of workers to the Ruhr. (2) The immigration into the British Zone of refugees "in very bad condition." The statistical effects of these can only be guessed. We do have left a terribly wide field for emotional conjecture. Of course a statistician always asks for more data and sometimes forgets how hard it is for overworked officials to collect them. I do not; but I still press for a census of the population by sex and age and for tabulation of deaths by age, sex, and *main* causes.

We may, I think, safely believe that in the first half of this year the rate of mortality in the British Zone was some 10–15% higher than in England and Wales a generation ago. Death rates are not perfect indicators of human conditions—a low death rate is compatible with great misery—but they are the easiest to measure accurately. Sample surveys of weights are valuable, but need explanation. One weighs all at work in a factory on Jan. 1 and repeats the observation on Feb. 1. The two sets will not generally be all the same people owing to sickness-absence and labour turnover.

I am *not* suggesting that our colleagues in Germany do not know these elementary facts, only that the detail of operations should be published; otherwise partisan criticism is inevitable. We as a profession are the last people in the world to forget Walter Bagehot's saying: "How much of real suffering is there that statistics can never tell." But we do know the value of statistical indices.—I am, etc.,

Loughton. MAJOR GREENWOOD.

Physiological Rest

SIR,—It is good to find Mr. Norman Capener (Nov. 23, p. 761) giving fresh publicity to the views of Hugh Owen Thomas and Sir Robert Jones, views which often now get lip-service but whose fundamental principles are apt to be obscured by a mass of excrescences. I would ask your courtesy to supplement Mr. Capener's thesis by a few suggestions of modern improvements.

For instance, he illustrates two pieces of apparatus to abduct the shoulder, but omits the very simple device of balancing the wrist on the top of the head by a wristlet fastened to a webbing cap of the type used by footballers. This is adequate in nearly all cases of deltoid paralysis and avoids putting the weight of metal apparatus on hip muscles, which are commonly weakened simultaneously.

Then the rather complicated finger and wrist apparatus which he illustrates can nearly all be replaced by "perspex" (bomber glass) moulded either to the limb or to a plaster model. Unlike leather apparatus it needs no metal struts, while it is more readily moulded in several planes than is the equally light "vulcanite." The physiological position of thumb and fingers in opposition and moderate flexion can be maintained by a simple roll of "perspex" about the size of Churchill's cigar. If the long extensors are weak, the roll can be made about 2 in. (5 cm.) in diameter, and these are almost self-retaining steadied by a tape round the wrist.

Plaster of Paris, which is recommended for many conditions, has numerous drawbacks, one of the chief being its weight; and, as the author points out, the ease of its application does not imply that it is easy to apply well; and it is in these days a common source of much human misery. The hand splint illustrated, while maintaining a good posture, cuts out all active function, whereas the "perspex" roll already referred to enables many actions to be carried out by the thumb and fingers, while still maintaining good posture.

Similarly, scoliosis of the type illustrated can be more comfortably supported by a buttress of "perspex" or of cork impregnated with celluloid attached to an ordinary ladies' corset; and these have the advantage of filling out the hollow so as to give a better set to the clothes. The Goldthwait spinal brace, which is constructed on the same principles as the Taylor brace, has the great advantage that, being made of spring steel, it is more supple, allowing rotary and lateral movements without antero-posterior ones.

For the knee, where movement is to be eliminated but not weight-bearing, as in chronic arthritis, a moulded posterior trough of "perspex" is light and efficient. Where lateral instability needs control but flexion is desired, the troughs for calf and thigh can be separate and joined by a pair of light steel hinges.

One agrees heartily with Mr. Capener's warning against the evils of the bed posture commonly seen in hospitals, but regrets that he did not refer to the extreme value of the prone position with the chest supported on a firm wedge; this allows exercise of the glutei, spine, and lateral abdominal muscles in a shortened position, which builds them up astoundingly in such cases as poliomyelitis and quiescent tuberculosis of the spine. One feels a little nervous at the mention of "regional surgical workshops," for though this is in line with the principles of the National Health Act, there has in each of the great wars been a good deal of standardization under the general supervision of master orthopaedic surgeons. But the great need at present, as stressed not long ago by Prof. McMurray in his presidential address to the British Orthopaedic Association, seems to be to induce the younger generation of surgeons to devote time and interest to fitting their appliances to the needs of individual patients and special types of diseases—e.g., something which may be admirable for a foot-drop of lower-neurone origin may be quite harmful to one in a spastic cerebral palsy.—I am, etc.,

Bath. M. FORRESTER-BROWN.

The Plebiscite

SIR,—I was disturbed to find in the *Journal* of Nov. 30 letters suggesting, for a variety of reasons, that we should answer "Yes" in the referendum. They seemed to me to be evidence of muddled thinking. There was the point of view expressed that there could be no harm in discussing regulations *without prejudice*. If we discuss them at all we imply acceptance of an Act with which we have expressed our profound disagreement, and we know from his own lips that Bevan is not prepared to enter into negotiations with us. We also know into what a position our discussions—*without prejudice*—on the matter of "compensation" manœuvred us. Why, then, should we delude ourselves?

Again, there was the point of view expressed by some that the National Health Service Act is now law, that the Government were given a mandate by the vast majority of the country to make it law, and that, even if we consider it to be a bad law, we should not oppose it but obey it and co-operate with its framer. I have even heard the view expressed that Socrates drank poison at the instance of the laws of Athens, which he obeyed though he thought them evil, and that therefore we should follow his example. Here is an analogy indeed! Are *we* too to commit suicide? It is more than doubtful if the

Government had any mandate at all from a majority of the people as regards the National Health Service Act. The "vast majority," even yet, are largely ignorant regarding most of its details, and if they were not would probably be horrified at a good many of them.

There are inherent in this Act a definite and deliberate attack on personal liberty, an obvious urge to dominate, oppress, and control—a step not unlike some of those first taken by a man named Adolf Hitler. If we believe that Act to have in it the seeds of future evil—evil not only for ourselves but for our patients—for freedom's sake let us say so and stand firmly together. Had there been people in Hitler's Germany who, at the beginning, had had the courage to say, "These things are bad: we must and shall oppose them!" and not, "These things are the law of the land, so we must obey lest we get into trouble," Belsen and Dachau might never have existed and the second world war might never have happened.

In any case our fighting Chairman, Guy Dain, has surely made it clear that there is nothing in the Act which says we *must* join a service of which we utterly disapprove, and we break no law by not doing so. Let us remember that, and remember too what we have already gained by unity and courage; and let us, for the honour of our profession, retain that courage and unity for the battle which lies ahead of us.—I am, etc.,

A VICTOR RUSSELL,
Chairman, S. Staffs Division, B.M.A.

SIR,—Fears which I expressed in a recent letter to you—that some, possibly many, doctors who replied "Yes" to the question asked in the plebiscite would, if they had understood the import of the question fully, have answered "No"—have proved to be far from groundless. At a recent meeting of my local Division, called to discuss the matter, it was obvious that a number of men had already replied "Yes" under a misapprehension, and it was indeed pathetic to sit there and realize more and more as the meeting went on that if only the plebiscite question had been better worded the replies would have been (I estimate) 95% "No."

The root cause of the trouble appears to have been that so many men have probably not had the leisure in which to read all the discussions and articles which have been published in the past few weeks. When finally the blue paper arrived, thoughtfully accompanied by a 2½d. stamped envelope, they opened it full of enthusiasm, expecting (rightly) a simple question to be answered. The word "negotiate" misled them, and, feeling that all fair-minded men should be at least willing to *negotiate*, they fell into a trap (unintentionally placed before them) and replied "Yes."

Dr. N. Beattie (Nov. 30, p. 834) makes the good and obvious point when he expresses the opinion that in this plebiscite we should have been asked simply and straightforwardly whether we were willing to work the Act *as it now stands* on the statute book. Brief notes in block letters explaining that this would mean giving way completely upon certain very important points, already decided by the majority of doctors to be indispensable in an Act, might well have appeared on the form. Is it too late now to publish in a prominent position in the *Journal*, or to circulate to doctors, a request for a reconsideration and a further reply bearing these implications in mind? I suggest that the number of "No" replies would be thereby largely increased.—I am, etc.,

Colne. A. W. R. EARDLEY.

SIR,—Having taken a more active part in the controversy over the National Health Service than your correspondent, Dr. L. P. Lockhart (Nov. 30, p. 835), I would like to comment on some of his views. Many discussions with members of the public have convinced me that they are only concerned with the formation of a unified service free of doctors' bills. They do not realize that our opposition has never been against this—indeed the contrary is the case—but is directed against the "nationalizing" of the profession, which is necessary for the Government to obtain control of medical certification.

Your correspondent stated that we must not let our "interest" be jeopardized without a struggle, and yet, having looked at the far horizon and seen streams of lava flowing from many political volcanoes, he seems to advocate a jump into our local volcanic stream in order to attempt to direct its flow. I would suggest that we may be able to do something from outside, but once in the stream we shall be engulfed and helpless.

I agree that the Minister may be different now his Bill is law, and will formulate regulations which will probably be attractive, especially financially. He will then proceed, at a later date, to modify them as conditions make the profession more "ripe for plucking." Mr. Bevan has ignored the views of our representatives from the first, although he tells the public that he has been in "consultation" with us. We are his technical staff upon whom he will rely for the success of his Bill. This does not seem to me to be a democratic procedure but is the action of a Minister who knows no compromise.

Dr. Lockhart asks what we should say if a union held up the work of the country because it did not like an Act. This is of course a likely form of reaction and seems to be the only language the Government will understand. However, I must point out that, should the majority refuse service at a later date under the new Health Act, we shall continue to serve the public, but not under the terms of the Act—a vastly different thing from "holding up the work of the country."

May I refer to the "principles"? These have been formulated by representatives briefed by each Division, and Dr. Lockhart may have a hand in the briefing of his own representative. A reply to the plebiscite of "Yes" will imply that the individual is prepared to throw the principles of the profession overboard if the regulations are sufficiently attractive. This implication is inescapable and to my mind was not made sufficiently clear in the literature sent out with the plebiscite form. Our principles are sound and reasonable and their incorporation in the Act would have left us free and would still have given the people the service they wished. Let us stand by our principles, and our prestige will suffer far less than if we become Mr. Bevan's yes-men.—I am, etc.,

Rotherham. ALAN TAYLOR.

SIR,—The reason why I have answered "No" to the plebiscite form is not from a desire to "slam any doors" but because I consider the National Health Service Act to be another nail in the coffin of the freedom of this country. Under the Act my life, in the long run, would probably be very much easier. I would, in the ultimate future, enjoy the benefits of a fixed—or nearly so—income, regular hours of work, a rota system of night work, locum arrangements for holidays, fewer practice expenses, etc., but, as I have said to many ardent local Socialists, I went into medicine and general practice with my eyes wide open, and if I was not prepared for irregular hours, night work, and being "on duty" for 24 hours a day I would not have taken on the job.

As the Bill is now law, we can only discuss details such as terms of service, which can be altered without consultation and irrevocably at the whim of this or any other Minister, and if we answer "Yes" it means that we tacitly accept the Act except for certain details, and from then on we are powerless in the hands of the Minister.—I am, etc.,

Coventry. JOHN HALE POWER.

The New Health Service

SIR,—It has been with some dismay that I have recently read in the popular press of the tendency in the ranks of organized Labour for interference in matters strictly medical. While a great number of us do agree and even welcome a medical service that will guarantee equal service to all, irrespective of rank or position, I do think that I speak for the majority when I suggest that the time has come for us as an organized body to call "halt"—resoundingly and meaningly. To think that an organization like the T.U.C. dares to meddle in our affairs is almost, with due respect to all forms of religion, blasphemy.

I am a member of the Labour Party, but I do not admit that this or any other party has the right to regulate the actions of a humanitarian body, which is concerned solely with the well-being of all people living in these islands. Isn't it about time we simply stated an irrefutable fact? *We* are the persons who are looking after the health of the people, and we do not care very much about the idea of lay people interfering with our ordinary functions. Why don't we say to the responsible Minister, "We are quite willing to play ball if you are willing to accede to our demands"—not requests? This

would show him quite definitely that we want our own terms under our own organization, and unless we get our own terms he will have a very pretty Act on the statute book which will mean nothing if he has not a medical backing.

Being a Celt, like the Minister, I would like nothing better than a tussle with him on this question, and if I were guaranteed the support of the medical profession I am sure that I could, like many a delegate in a labour dispute, gain the disputee's (horrid artefact) point. I do think that if a few of the younger members of the profession were allowed to dictate for the rest of us (not arbitrate, please note) we could follow the fashion in labour disputes and get our point at the expense of the ordinary taxpayer.

So far as an ordinary country doctor can see, nothing has so far been done in the ranks of medicine that will assure the Minister of any definite opposition. I personally would be very glad to see an ordinary practitioners' association being formed with the avowed intentions of (*a*) a reasonable resistance to sterile acceptance of Government proposals (i.e., without full discussion among general practitioners), and (*b*) making quite sure that we as a profession shall have the last word about the running of any such scheme. Might I here remind readers that the most stringent medical discipline in all the world is maintained in Great Britain, and this same discipline is maintained entirely by the profession. Surely this in itself is enough to guarantee any services run by medical men in this country.

In my humble opinion now is the time for us to unite and tell the Government what we are willing to do, for the good of the population—but only at our own terms. I am of course writing as an ordinary general practitioner, and would suggest that other branches of medicine should formulate their own demands. In this way, and in this way only, can I see satisfaction for the general public and for their servants, the medical men and women of these islands.—I am, etc.,

Llanrwst. MEURIG W. WILLIAMS.

Profession or Trade?

SIR,—During the past year I have talked with many medical practitioners and read many letters in the *Journal*. I find that many men of the finest type are prepared to enter the new Health Service, even though they disapprove of the Act as it stands, because they consider they should be prepared to make personal sacrifices if there is any hope that the ultimate service to the patient will be improved. Their attitude has developed because they have been "conditioned" by many years of work in which they have always put the needs of the patient before self-interest. While we may doubt whether the ultimate good of the patient will be achieved by the present Act, we must honour the integrity of their opinion.

Nevertheless, events of the past week must have shaken all those who think this way. If the principle of the "closed shop" can already be applied to doctors and nurses, then will it not be applied at a later date to those who enter the Health Service? Coercion of individuals into a political organization of any colour is so abhorrent to our deep-rooted conception of democracy and the freedom of individual thought that the present situation must give us reason to consider with deep concern where acceptance of service will lead us. Let us take heed lest we relinquish that freedom which we can never again regain, and so become enslaved in a political tyranny only too similar in its beginnings to that which brought the world to chaos seven years ago.—I am, etc.,

Kendal. GEORGE H. EDGECOMBE.

SIR,—Servants of our patients or slaves of the State?—that is the question. The present is the time to make a last stand against the Nazi creed that the individual exists for the State. We fought for six years against this pagan ideology and were the only nation with guts enough to declare war while lesser nations thought to negotiate with tyrants and were swept away. To beat the enemy we employed methods of "total" war, but now the devil of totalitarianism refuses to depart. To-day our Parliament, elected by a vast majority, is ordered by Blackpool and Brighton. The Socialists have captured the Labour machine, and to ensure complete subservience they have engineered the "trade" unions into political unions and are crushing political independence among the workers by means of the "closed shop."

Medicine should be divorced from politics, but we have been thrust into the van of the fight, because a doctor's certificate may provide a loophole for a labouring man to escape work or direction to other places. To prevent this possibility doctors are to be brought to heel. That those in power at present do not trust us in this matter is shown by their attitude over the "milk priorities" certificates. Our patients' needs are to be subservient to the State.

How are we being tempted? We are being given an Act which is welcome to most doctors, including myself, as it provides many of those improvements in services for our patients for which the profession, through the B.M.A., has been fighting for years but without avail until the National Government took up the question. The tragedy is that it has fallen to the lot of a party Government to hammer out the Bill. Looked at on its own it has enough attractions to tempt some doctors to say "Yes" to negotiation over details. But others with wider vision can see clearly that the Health Act contains within it the makings of a prison for our patients and ourselves when linked up with the other pieces of the political jigsaw puzzle, and have refused to be tempted at all.

How are we to be coerced? The methods of coercion are clear. Now that the Act has been passed, fifty nurses and a doctor at the Willesden Municipal Hospital receive dismissal notices because of refusal to join a trade union. It is repudiated as a mistake, which it undoubtedly was, for the Press has not yet been muzzled (in spite of the venomous intolerance to a free press shown by some of the speeches for the motion demanding a Royal Commission on the press), yet this premature unmasking of intentions has been repeated at Walthamstow.

Mr. Bevan has told us that we are not yet "ripe" for plucking. These are ominous words both for our patients and ourselves, for although Parliament makes statute law it delegates the making of regulations to the various Ministers. The Minister of Health is given control of municipal and voluntary hospitals. But will the patients of a doctor who remains outside the Service be easily admitted to a State hospital? And if nursing-homes become State controlled by regulation what will happen to private practice?

What can we do about it? The Bill is law, and the defeatists say, "Let us make the best of it by negotiation." Was this Churchill's answer to the Nazis? Laws are man-made, and if men make bad laws they can make new and better ones. When Australian doctors were presented with a similar Bill and believed it bad they refused to work it: it lies dead in the Australian statute book. It may take only a six-week electioneering campaign to make a politician but six years to make a doctor, and Mr. Bevan admits that the Act cannot work without our co-operation. Let him bring forth a Bill worthy of our patients and not a travesty of justice for their enslavement and the turning of our profession into a trade.—I am, etc.,

Dereham. E. IVIMY PUDDY.

So Now You Know

SIR,—As a visitor to this country from Australia I have been particularly interested in the development of thought on the subject of a State medical service controlled by politicians. Members of the profession have been divided in their views: some in favour of a State service as being the only means of giving the public the best treatment, others reluctant to see the profession pass into the hands of politicians.

The recent action of the Willesden Borough Council in dismissing the staff of two hospitals for political reasons clarifies the position. In any service which is, or can be, controlled by the Labour Party, of which the ruling body is the Trades Union Council, doctors and nurses—otherwise quite competent at their work—can be sacked for their political views. Such a state of affairs has never existed in medical history except in Nazi Germany.

No matter how much the action of the Willesden Borough Council may be condemned by the Parliamentary Labour Party, no matter whether the notices of dismissal are withdrawn in this instance, it is now obvious that the T.U.C. intends to force us to join a union—a body associated in the minds of most of us with the coal face, railway employees, and us

skilled labourers, and controlled by the votes of these large unions. Mob rule has no place in medicine. The future is now as clear as it was to Churchill in 1938. And if your Negotiating Committee "flies to Munich" to barter with Bevan, you have only yourselves to blame for the degradation to which our profession will be subject.—I am, etc.,

Penn. JAMES SMIBERT.

Unswerving Support

SIR,—If only we would all sink minor differences and stand together we could obtain from the Government any terms we like within reason. As Mr. Bevan stated, the co-operation of the medical profession is essential to the working of the scheme. No doctor should agree to join unless the right of appeal to the courts of the country is granted. This is, in my opinion, the most vital part of the whole Act.

If any doctor joined the Service and then found conditions intolerable and wished to retire, he would be permanently prevented from practising in the locality where he is known and has some prospects of making some kind of living, and it would be almost hopeless for him to try elsewhere. He may have bought, built, or altered a house to suit his professional requirements. The house may in ordinary times be most unsuitable to anyone but a doctor owing to its size, construction, or situation, and yet he, his widow, children, or even grandchildren may render themselves liable to heavy fines and imprisonment if they sell the house to another doctor.

The present danger is apathy and the idea spread by the lay press that just because the Act is law nothing can be done. I am ringing up a few of my colleagues who do not attend meetings and drawing attention to these and other dangers in the Act. Emphasis should be laid on the successful fight put up by our fellow-practitioners in both Australia and New Zealand. Some practitioners seem to have been confused by the manner in which the plebiscite question was framed. They have informed me that they answered "Yes" and they "always believe in discussion and arbitration" but that they would not on any account join the proposed Service on the terms and conditions laid down in the Act.—I am, etc.,

Rainham. W. U. DESMOND LONGFORD.

The Profession and Trade Unions

SIR,—It must have come as a profound shock to doctors and nurses to find that future employment might depend on their being members of a trade union, which I presume would have to be recognized by the T.U.C. It seems outrageous that our profession, which should be without interference by petty trade union and political controls, should be subjected to this dictatorship and political prejudice. This type of thing gives us a foretaste of what the profession may expect in a National Health Service.

Let us hope that the British Medical Association will give a clear call to the profession to resist with all in its power this flagrant intimidation into trade union membership, and let the Association give all the publicity it can to our fight for principles and freedom. Our work, our service, and our conscience must be governed by our duty to our patients and not by any trade union or political theories and preachings.—I am, etc.,

Newport. A. B. TAYLOR.

Public Relations

SIR,—Though the individual doctor may be liked, the same can hardly be said of the medical profession as a whole. We do not enjoy a good Press. But now is our chance to correct this anomaly. We shall not, however, win favour by doing what we think the public thinks we ought to do, nor need we harp too long upon the refrain, "We won't let our patients down." The motif behind this pious slogan, though doubtless sincere, may yet be tainted by a tincture of cowardice or sentimentalized by a desire to appear in the guise of Prince Charming.

Surely, Sir, all we really need to do to enlist the support of a strong body of men of good will is to stick up for the interests of medicine itself, and for those ideals which have been evolved by a hundred generations of our predecessors and which are at present in our keeping to cherish or let go. When old Polonius summed up his advice to his son in the famous words, "This above all: to thine own self be true, And it must follow, as the night the day, Thou canst not then be false to any man," he might have been addressing our profession to-day.—I am, etc.,

Buxted. W. R. E. HARRISON.

Pay of Pathologists and Bacteriologists

SIR,—Nobody will disagree with "Laboratory Doctor's" argument (Nov. 30, p. 836) that pathologists are specialists and deserve an adequate salary, but it opens the wider question of whether specialists should receive a higher remuneration than general practitioners.

(1) I believe that the only inducement to specialize should be a special interest or aptitude in a certain branch of medicine, not the hope to make a lot of money. (2) Perhaps not the modern panel doctor, but certainly the old "family doctor," was a highly specialized person. He was interested and specialized not in diseases but in his patients, whom he knew inside out and had observed from birth into old age. I doubt if "Laboratory Doctor" would be able to take his place to the satisfaction of all concerned. (3) It is very questionable if at present the income of the average specialist is higher than that of the average G.P. In a salaried service the personal prestige will be closely linked with the income. If we agree with the first two points there can be no reason why the specialist should have a higher prestige than the general practitioner, and both should have equal standing and income. Only thus can we assure the proper selection of "specialists in diseases" and "specialists in patients."

I may add that I am a pathologist for the same reason as "Laboratory Doctor."—I am, etc.,

London, N.W.2. GERHARD BEHR.

Rhazes and Avicenna

SIR,—In his paper "The Cough Syrup" (Nov. 16, p. 735) Dr. E. M. Boyd writes: "Arabian physicians, especially Rhazes and Avicenna, are usually credited with introducing syrups. . . ." As they were two of the most distinguished Mohammedan physicians of the Middle Ages (their textbooks, translated into Latin, were used as far west as Montpellier), it is only fair that their native country should have the credit for them—Persia. Rhazes was born 6 miles from Tehran, and the West named him after the town (Ray or Ragae). He lived in Persia most of his life, until indeed he went to take charge of the hospital at Bagdad. Avicenna was born in Central Asia of a Persian father, but worked and died in Persia. They *wrote* chiefly in Arabic, the scientific language of their day and region, just as Latin was in mediaeval times in Europe, but also philosophical works, and Avicenna one on the pulse, in Persian. (I have a manuscript copy of this.) The Arabs, avid of knowledge and industrious translators of Greek medical and other texts, produced few physicians of note. "Arabian" medicine was largely the work of Persians, Jews, and Syrians.—I am, etc.,

Droitwich. A. R. NELIGAN.

Seminological Investigations

SIR,—Might one appeal through your columns to pathologists throughout the country to establish a more expert and uniform service for undertaking seminological investigations? The investigation and treatment of female infertility has advanced greatly within the last few years, but many of the excellent gynaecological advances are made ineffective on account of inadequate investigation and treatment of male infecundity. It is now accepted by authorities that in nearly one-half of the barren marriages some infertility is contributed by the male, and in perhaps one-fifth of all cases the causative factor lies exclusively with the husband. The fact that healthy young males who give no history of a genital lesion frequently produce an azoospermic semen or one where the proportion of abnormal sperms is excessively high and their viability too short implies a very serious need not only for adequate diagnosis but for the study of the as yet almost unexplored subject of treatment. If more laboratories would give better service in this work and would agree to make their reports in

a more uniform way it would greatly encourage the clinician in exploring the important matter of therapy.

For the last eighteen months the Family Planning Association has run a laboratory entirely for the purpose of making seminological analyses and of studying post-coital cervical mucus. The laboratory is now working beyond capacity, and the physician in charge is willing to accept part-time clinical assistants and a certain number of Grade 1 technicians for training. Many laboratories may be glad to send an assistant to acquire this experience and thereby contribute to the possibility of advancing a service of urgent national and individual importance.

Any correspondence should be addressed to Dr. H. A. Davidson, F.P.A. Laboratory, 33 Wimpole Street, London, W.1.—I am, etc.,

ALECK BOURNE,
Chairman, Sub-fertility Committee,
Family Planning Association.

Vitamin Deficiency after Oral Penicillin

SIR,—The article in your issue of Oct. 26, p. 611, dealing with nicotinamide deficiency after oral penicillin interested me very much. Some time ago I was talking to a distinguished pathologist who made light of my suggestion that the eating of mouldy bread, often inevitable in prison camps, could be in any way harmful. The article now published would suggest that moulds may indirectly lead to vitamin deficiencies, apart from any direct poisonous action they may develop. It would be interesting to investigate the matter among former prisoners of war, in whom deficiencies were possibly caused in this way. —I am, etc.,

Colchester. G. C. PETHER.

Acute Enteritis in Subtropical Climates

SIR,—Sea mail to the Mediterranean still takes a matter of weeks and so I have only just read your number for Aug. 17 in which there was an article (p. 225) on "Acute Enteritis in Subtropical Climates" by Dr. Ian MacGregor. I am interested in the aetiology of this disease. It occurs frequently in the Mediterranean, particularly in personnel who have recently joined the station, being labelled "Malta Dog" or "Gyppo Tummy."

I would like to add a few more observations. First, it responds readily to treatment with sulphaguanidine; secondly, there is usually a certain amount of malaise associated with it although rarely any pyrexia; and thirdly, there is quite often a history of a meal ashore the previous day. Dr. MacGregor suggested that the disease might be due to a lowering of the resistance of the intestinal mucosa by a chill or by the invasion of an unknown virus or group of viruses rendering it vulnerable to the bacterial flora of the bowel. This may well be so, the activity of these organisms being inhibited by the sulphaguanidine. An alternative suggestion is that it may be caused by a hitherto unisolated sulphaguanidine-sensitive organism absorbed from the food. My second two observations suggest some infective element in the aetiology. I would be interested to hear of any other facts that would throw light on this subject. —I am, etc.,

H.M.S. Chequers. J. C. E. PESHALL,
Surgeon Lieutenant, R.N.V.R.

Antenatal Supervision

SIR,—It is very significant to see from Lieut.-Col. R. R. Willcox's paper entitled "Some American Ideas on Venereal Disease Control" (Nov. 30, p. 825) that in New York State every physician in attendance on a pregnant woman must have a blood test done on her for syphilis. As an American put it, "Syphilis is sure bad for babies."

For a considerable time in one's own practice I have taken 10 ml. blood from every expectant mother at her first examination whether she was a "booked" case or referred by a midwife for an antenatal check-up. This has been sufficient for a routine Wassermann, Kahn, G.C.F.T., group, Rh type, and Hb %. Thanks to the co-operation of the local authority and the regional blood transfusion laboratory the only cost in money is the stamps, and the time and trouble involved are negligible.

No one would like the practice employed in New York State —of being officially ordered to do something. Here we prefer to rely on a professional conscience, guided by advice and practice from our betters. Time and bitter experience have decided that every suspected fracture should be *x*-rayed and every expectant mother's urine tested for albumin—and that without "regulations." But what is the position generally about routine blood tests for syphilis in expectant mothers? If it is not a rigid routine procedure, where lies the fault? Sinister hints come from our obstetric chiefs that in any future national maternity service only those holding higher obstetric qualifications will be allowed to conduct abnormal labour—worse, the general practitioner may be shut out entirely from all "organized" midwifery. And yet have we had any clear lead from the obstetricians that routine Wassermann and Kahn tests should be done on every pregnant woman? May one go further and ask if it be the regular practice in the great centres of obstetric training? It may just be one of those awkward coincidences which prove nothing, but in the past month I have seen three expectant mothers who have had their previous supervision elsewhere. The first had attended the antenatal department of a large and very efficient provincial non-teaching hospital, the second a municipal clinic run by a very proud Midland city, and the third a world-famous maternity hospital. Yet not one of these women had had any blood investigations, and one had not had her pelvis measured or her blood pressure taken. At least that is her story, and she ought to know.

This, Sir, is a serious and fundamental matter. To protect the unborn baby and to recognize inheritable disease at the earliest opportunity should be the first aim of any medical service. As a profession we are proverbially slow to take up new ideas, and we shall be slower unless our leaders give us a clear lead and do it themselves.—I am, etc.,

Oakham. GORDON PURDY.

Sterilization of Syringes

SIR,—With reference to the letter from Lieut.-Col. R. R. Willcox (Nov. 2, p. 667), I should like to hear some more of the evidence as to inadequacy of spirit sterilization in the reduction of post-arsphenamine jaundice when boiling of syringes after each injection was made compulsory in the Army. I was in charge of a 200-bed V.D. centre for 8 months and could note no diminution in the incidence of jaundice after this rule came in, nor could I note that it was any higher in another centre, where I subsequently worked for 3 months in which the sterilization rule was not observed. Admittedly many of my patients had had odd injections elsewhere, as we had many out-patients, but there were quite enough wholly treated at the centre to give a definite impression. Jaundice occurred generally during the second "course" and selectively after the third or fourth injection. This is difficult to square with theories of infection. It is also hard to see how a syringe used to inject acriflavine intravenously could transmit living virus (Hughes, Nov. 9, p. 685), or why an injection of penicillin would be more likely to contaminate a syringe than one of T.A.B., tetanus toxoid, or any of the other routine injections.—I am, etc.,

England. Ex-R.A.M.C.

Double Gastric Ulcer with Perforation and Haemorrhage

SIR,—The article by Mr. M. Kaye on Double Gastric Ulcer with Perforation and Haemorrhage (Nov. 9, p. 695) was of particular interest to me as I had had to deal with similar complications only a few days previously, and this additional case seems worth recording.

A man aged 62 was referred to the out-patients' department of the Lincoln County Hospital on Nov. 6 on account of epigastric pain soon after meals for six months. He also gave a history of vomiting a quantity of "black stuff" on several occasions in the previous week and stated that the motions had been quite black. On examination, he was thin and pale, there was epigastric tenderness, the stomach was dilated, and waves of peristalsis could be seen. Blood examination showed haemoglobin 52%, colour index 1.1, R.B.Cs. 2,440,000 per c.mm. Next morning at 11 a.m. he complained of sudden onset of severe pain in the upper abdomen. When seen again, he was pale and shocked, the pulse was almost imperceptible, and the abdomen was rigid and tender. Morphine was given, a Ryle's tube was passed, and drip-blood transfusion commenced. His condition improved, and the abdomen was opened

about 4 p.m. under cyclopropane and local anaesthesia administered by Dr. Clutton-Brock. A quantity of free gastric contents was found due to perforation of a pre-pyloric ulcer on the anterior aspect of the stomach. There was gross induration and numerous adhesions were present. A two-thirds partial gastrectomy was performed and completed by an anti-colic anastomosis with a Hoffmeister's valve. The specimen showed a second ulcer on the posterior wall eroding the pancreas, which almost certainly accounted for the haemorrhage, the ulcers being of the "kissing" type. The patient was remarkably well on the following day, and has made a straightforward recovery; he is now (Nov. 20) getting up and about. Sections show no evidence of malignancy.

We were fortunate in this case in that the haemorrhage came on before the perforation and was not very severe. In view of his poor condition the operation seemed rather a hazardous undertaking, but one felt that gastrectomy was clearly indicated as only by this means could one deal effectively with the three complicating factors of perforation, haemorrhage, and pyloric obstruction—I am, etc.,

Lincoln. G. A. BAGOT WALTERS.

Dental Anaesthesia after Coronary Thrombosis

SIR,—I feel I must join issue with your correspondent answering the question under the above heading (Nov. 30, p. 843). Patients who have "recovered" from (I should prefer to say have improved after) coronary thrombosis are among the gravest risks which the anaesthetist is called upon to face. A myocardium which consists to a greater or less but always a serious degree of fibrous tissue replacing the normal muscle, and which must perforce be served by narrowing and increasingly inefficient coronary vessels resulting in inadequate oxygenation, can never be anything like a "normal" risk. Nitrous oxide is a weak anaesthetic which entails a *reduction* in oxygen supply well below the atmospheric 20% to be effective. To administer this atmosphere deficient in oxygen to a myocardium already likely to be anoxic is to court swift and sudden disaster.

I would suggest two alternative techniques: (1) Thiopentone administered in the operating theatre (where all necessary facilities for resuscitation are conveniently at hand) with the patient sitting as upright as possible on the table. This guards against the inhalation of blood which might set up a laryngeal spasm, serious in its anoxic potentialities. Further, to guard against this complication the dental surgeon should be constrained to extract a few teeth at a time and to guard carefully the haemorrhage with swabs. After the operation the patient should be laid down and rapidly turned on to his side with the head low. He should remain lying down for some hours. (2) Cyclopropane anaesthesia induced direct and taken slowly to the beginning of the third plane. The patient should be sat well up for this and the same precautions observed by the dentist as before. The teeth can be extracted during the recovery period on the lines of the old-fashioned "straight gas." Cyclopropane has the great advantage that oxygen percentage can always be maintained above 20%.

The conduct of these cases is not a fair responsibility for the non-specialist; but if this is inevitable, I would suggest gas–oxygen with not less than 25% oxygen, supplemented with trichlorethylene through the wick vaporizer supplied with all the more recent gas machines, and administered by nasal inhaler if possible in a properly equipped theatre.—I am, etc.,

London, W.1. F. BARNETT MALLINSON.

Postgraduate Education

SIR,—The letters of Mr. John Stallworthy (Oct. 5, p. 510) and Dr. John H. Anderson (Nov. 23, p. 792) lead me to record my gratitude for the warm welcome which many Service doctors received from the members of the medical profession in Australia. As a medical officer of the British Pacific Fleet I was privileged to receive correspondence tuition which was the gift of the Postgraduate Committee in Medicine of the University of Sydney to the Royal Navy. This tuition was of an original and helpful type well adapted to the conditions of Service life. While visiting Melbourne I received a great deal of assistance from the Dean of the Faculty of Medicine, who provided facilities for study in the University. These are two examples of the friendship and assistance which many of us received wherever we visited in Australia.

I would like to express my appreciation of this hospitality which we received from senior medical colleagues in Australia. Doubtless many other medical officers experienced similar hospitality in this and other Dominions during the war, and hope that the return of peace will not lead to a cessation of this friendly postgraduate training within the British Commonwealth.—I am, etc.,

Glasgow. J. MACLEAN SMITH.

Legal and Medical Insanity

SIR,—I am grateful to Dr. C. J. de Vere Shortt for his observations (Nov. 23, p. 794) on my letter (Oct. 12, p. 555). He states: "There is, to the informed, a great difference between the two forms of insanity" [i.e., medical and legal]. The trouble is, however, that there is usually only one person being defended.—I am, etc.,

Westcliff-on-Sea. JOHN A. MCCLUSKIE.

Demobilized Specialists

SIR,—I agree very largely with Dr. J. S. McKenzie Pollock's views (Nov. 23, p. 792) on demobilized specialists. It is pertinent to ask what makes a specialist. Is it rank, qualification, or experience?

At best many ex-R.A.M.C. officers are no better than "specialoids." By all means let these be given help to pursue their specialty, but not to the exclusion of their less favoured fellow-officers who are once again in civilian practice and are as keen to serve as they were in the Forces.—I am, etc.,

Edinburgh. A. WYNN WILLIAMS.

Recruitment to I.M.S.

SIR,—Your Educational Number, dated Sept. 14, in an article purporting to give information to prospective candidates for the public services, states (at p. 392) that R.A.M.C. officers have the opportunity to transfer to the I.M.S. This is incorrect for two reasons: (*a*) The I.M.S. ceased all recruitment to its ranks on the formation of the I.A.M.C. in 1942 and officers of the I.M.S. like myself are now seconded to the I.A.M.C. The I.M.S. therefore may be said to be dying a natural death, and when the last recorded officer dies or retires will itself die. (*b*) The policy of recruitment to the I.A.M.C. is to recruit only Indian domiciled officers, and so far as I know it is not open to Europeans.

The future of the European officers of the old I.M.S. is not the subject of this letter, and the above is written with the intention of correcting the false impression your article gives the reader. Official information on this subject is presumably available from the Director-General, I.M.S., G.H.Q., India.—I am, etc.,

C. W. A. SEARLE.
Cambridge. T/Col. I.M.S./I.A.M.C.

*** We are obliged to Col. Searle for pointing out the error. Recruitment of Europeans to the I.M.S. has ceased, though the Civil branch still exists. Full information may be obtained from the Secretary, Military Dept., India Office, Central Buildings, Matthew Parker Street, London, S.W.1.—ED., *B.M.J.*

Work of the Government Lymph Establishment

SIR,—I much regret if in my article "Work of the Government Lymph Establishment, July, 1898, to June, 1946," I may have given the impression that Dr. Blaxall and I were attached to the Government Lymph Establishment during the entire period from 1898 to 1946.

I retired from the directorship of the Government Lymph Establishment in 1930. Dr. Blaxall had died prior to that. Mr. Sutton was on the clerical staff, attaining the position of head clerk towards the end of the war.

From 1930 until his death in 1945 Lt.-Col. W. D. H. Stevenson was the director and Dr. G. G. Butler assistant director. The gigantic output of vaccine lymph was achieved by them, assisted by a very capable and loyal staff who never spared themselves in any way to procure the outstanding results.—I am, etc.,

Ryarsh, West Malling. H. S. FREMLIN.

Obituary

We regret to announce that Wing-Cmdr. THOMAS STANLEY RIPPON, O.B.E., M.S., R.A.F.(ret.), died on Oct. 4 at his home in London after a long illness. He was born at Warrington on Sept. 19, 1883, son of the Rev. Thomas Rippon. He studied medicine at Bristol and the London Hospital, and qualified M.R.C.S., L.R.C.P. in 1911. In the war of 1914–18 he held a commission in the R.A.M.C. for two years in France, and, having transferred to the R.A.F., served in India and Egypt after the armistice. In 1923, with the rank of squadron-leader, he joined the research staff at Northolt aerodrome. During further service overseas he was elected vice-president of the Mesopotamia Branch of the B.M.A., and after retirement from the R.A.F. he became a member of the Naval and Military Committee, and had a seat on the Council for four years. Rippon was for a time president of the Central Medical Board of the R.A.F. In more recent years he worked as assistant physician to the Tavistock Clinic and clinical assistant in the neurological out-patient department of the Royal Northern Hospital, Holloway, and at the Princess Beatrice Hospital, Earl's Court. He was the author of the section on aviation in the *British Encyclopaedia of Medical Practice*, and published papers on temperament and Service flying and on air-sickness.

Dr. RODERICK MARTIN FRASER, of Stornoway, Isle of Lewis, died at the Aberdeen Royal Infirmary on Oct. 8 following a major operation. Born in 1899, educated at his father's school in Stornoway and at the Nicolson Institute, he served with the Black Watch and was badly wounded in 1918. He took up his medical studies at Aberdeen University in 1919, and graduated M.B., Ch.B. in 1924. After a few years of assistantships in medical practices in the Midlands, he returned to his native town, where he became a popular and hard-worked practitioner. Many friends within the profession regret the passing of this hearty, able son of the Highlands, and in particular his fellow-students of Aberdeen University in the post-war years.

Dr. STEPHEN ANDREW CORNELIUS died suddenly on Oct. 23. Of Indian birth, Dr. Cornelius studied at Bombay University and took his B.Sc. in 1908. Subsequently he came to England and studied at University College Hospital, qualifying in 1915. After acting as house-physician at University College Hospital and as a clinical assistant at the Maudsley Hospital, he went to Swindon in 1918 and joined the staff of the G.W.R. Medical Fund Society. In 1921 he left for India, but returned to England five years later and became established in private practice in Swindon. He was honorary anaesthetist to the Swindon Victoria Hospital and a former chairman of the Swindon Division of the British Medical Association. By rare devotion to his fellow men Stephen Cornelius illuminated the profession to which he devoted his life. A man of wide culture and interests, he endeared himself to his many patients and friends by his unremitting labour and by his manifold acts of kindness and generosity. In him were combined the best qualities of the family physician in the old tradition.

We regret to announce that Dr. SUTTON DUDLEY GILL died on Oct. 28 in his 91st year. The third son of Harry Gill, of Birmingham, he was born on June 21, 1856, and from King Edward's School he studied medicine at Queen's College, qualifying M.R.C.S., L.R.C.P. in 1892. Dr. Gill practised in West Bromwich throughout his long life and took a very active part in its public affairs. He was Mayor of West Bromwich in 1923, and alderman later; for many years he was the chairman of the Maternity and Child Welfare Committee, and in recent years was the "Father" of the town council. He leaves two sons, who are both members of the medical profession.

Dr. WILLIAM FRANKLIN O'REGAN died at Whitchurch, Cardiff, on Nov. 3, aged 63, after a painful illness of many months which he had borne with fortitude and no complaint. He was educated at the Christian Brothers' College, Cork, and took his medical course at Queen's College, Cork. While there he entered fully into the social and athletic activities of the College, was a member of all athletic committees, editor of the students' magazine, and a principal speaker in the debating society. He graduated as M.B., B.Ch., N.U.I. in 1912 and came to England as house-physician to the Salop Infirmary, Shrewsbury. He served in the 1914–18 war, most of the time in India, where he acted as lieut.-colonel for a period. Returning, he took up practice at Lloyd Square, Islington, and was a foundation member of the Irish University Club in London. He began practice at Whitchurch twelve years ago. Of a singularly retiring disposition, his courtesy, kindness, and charm of manner endeared him to all his patients, and strict adherence to the rules of his profession gained him the deep respect of his medical colleagues. His hobbies were music and literature. Owing to the illness of one partner and the absence on service of another during this war he was greatly overworked in a very large practice. He is survived by his wife and two daughters. His only son, Flying Officer Brian O'Regan, was posted missing after a bombing raid to the Continent. Dr. O'Regan was a member of the B.M.A. and served on the local executive committee and Branch Council in recent years.

Dr. JOHN GAWLER MURRAY, who died at Wokingham on Nov. 13, was a good country practitioner and popular with his patients. On qualifying at Edinburgh in 1897 he first settled in Scarborough, where his father had practised before him, and held among other posts that of Admiralty Surgeon and Agent. This involved his going to sea to render assistance to many ships which had been mined by the Germans during the 1914–18 war. Later he joined the R.A.M.C., with the rank of major, and was in charge of the military hospital at Scarborough, where he had to deal with the casualties sustained during the bombardment of that city. After the war he moved to Blakesley, in Northamptonshire, where he soon built up a large practice. He retired to Wokingham early in 1939, and on the outbreak of war was soon in demand as a teacher of first-aid. Dr. Murray took a great interest in this work and had been an instructor at one of the civil defence schools. More recently he helped the local practitioners by taking the place of men who were away on service, though he was by then over 75. In fact he worked up to the last and died practically in harness. He was married, and leaves a widow but no family. His passing is regretted by a large circle of friends both at Blakesley and at Wokingham.

Dr. W. R. CUMMING died at Bexley Heath on Nov. 15 at the early age of 52. A graduate of Glasgow, he took his M.A. in 1919 and the M.B., Ch.B. in 1923. He settled in Bexley Heath in 1929. During his seventeen years there he was an active member of the Dartford Division of the B.M.A. and was chairman in 1936–7. He was an honorary physician of the Bexley Cottage Hospital, in which he took a very great interest. A colleague writes: Always thorough in his work and sound in his judgment, Dr. Cumming was a man of upright character. These qualities made him well liked by his patients and friends, and he was a fellow practitioner with whom it was a pleasure to associate. He will be sadly missed by all who knew him. He leaves a widow, a son, and two daughters.

Dr. SYDNEY DAVID SHEARE, who died in London on Nov. 16, qualified from Guy's Hospital in 1944, and after working at pathological histology at St. Thomas's Hospital was for a time a voluntary assistant in the department of pathology in the British Postgraduate Medical School. "C. S." writes: The untimely death of Dr. Sydney Sheare is a sad loss. His courage and stoicism in the face of a long illness, of which he knew the result, will long be remembered by those who knew him well. In some ways he was a martyr to medicine; as a doctor he proved to be an exceptional patient. Few have fought adversity with such determination and yet achieved success in their work. His warmth of character was equalled only by his kindness and generosity, and his ability as a raconteur reflected a truly versatile personality. Deepest sympathy is extended to his wife, Dr. Peggy Sheare, and his mother, in their immeasurable loss.

CHARLES WILLIAM DEAN, the doyen of the profession in Lancaster, died on Nov. 15, only a few days after his eighty-sixth birthday. He had been a member of the B.M.A. since 1886. He was born in Lancaster, and spent his whole life there, if one excepts the few years of his medical education in London and Edinburgh. Engaged for the most part in general practice, he yet found time and opportunity to train himself and to excel in general surgery. He became well known over a wide area as an operating surgeon, and enjoyed and deserved the esteem and confidence of his colleagues. He was the first surgeon in Lancaster to remove an appendix—over fifty years ago. In ophthalmic surgery, too, in which he was especially interested, he made a name for himself. From first to last he was connected, as house-surgeon and then as a member of the honorary surgical staff, with the Royal Lancaster Infirmary. In this hospital, which was very dear to his heart, he rendered invaluable service, and was popular with the committee and with the medical and nursing staff. Even during the recent war, when he was well over eighty, he worked in the ophthalmic department there as often as his health and strength would

permit. Charles Dean was neither a ready speaker nor a ready writer, though some of his occasional papers appeared in this *Journal* and in the *Practitioner*. He never took part in public life, but he was keenly interested in music, and in his younger days was no mean performer on the French horn. His taste in literature was wide, and he had more than a superficial knowledge of heraldry. With a retentive memory, which time had not impaired, he had, as he used to say, "a mind stored with useless and irrelevant facts," which was perhaps one of the chief charms of his conversation. Quiet and reserved in manner, somewhat impulsive, always sympathetic, he was my colleague and friend for over forty years, and I can say only that the longer I knew him, and the better I became acquainted with him, the more I came to appreciate his character and to love his personality.—J. A. G.

Surg. Capt. ARTHUR GORDON VALPY FRENCH, R.N. ret., who died at Exmouth on Nov. 21, was born in London in 1883, son of the Rev. C. J. V. French, M.A., and was educated at Sherborne School and St. Thomas's Hospital, qualifying M.R.C.S., L.R.C.P. in 1909. He was a medical officer at the R.N. Hospital, Haslar, 1911–14, and at the R.N. Hospital, Pembroke Dock, 1919–22, after serving in H.M.S. *Carnarvon*, *Marshal Ney*, and *Vindex*. Later he was fleet medical officer of the Home Fleet, and then in charge of the R.N. Hospital, Malta. On relinquishing his commission he was medical officer to Elders and Fyffe's Shipping Company and served on the staff of the Admiral Superintendent of contract-built ships.

Squad.-Ldr. WILLIAM M. HONEYMAN, R.A.F.V.R., who died on Nov. 24, entered St. Andrew's University as first bursar and graduated B.Sc. in 1932, and M.B., Ch.B., with commendation, in 1935. After holding two house appointments, he was awarded a Commonwealth Fellowship and studied at Columbia University and at the Phipps psychiatric clinic in Baltimore. On his return from the U.S.A. he was admitted to the membership of the Royal College of Physicians and became Halley Stewart Research Fellow in the M.R.C. unit at Queen Square. In 1939 he joined the Volunteer Reserve of the R.A.F., and on mobilization was seconded for duty to the psychological department of Cambridge University. There he worked on problems of applied neurology and psychology in aviation medicine right up to the time of his tragically premature death.

Dr. D. Russell Davis writes:

When Honeyman came to the Psychological Laboratory of the University of Cambridge he began to apply his knowledge of neurology and neurophysiology to the problems of normal human activity, particularly, because of his war duties, to that of aircrew. With his high intelligence, keenness, and thoroughness, and his excellent training in the U.S.A. and in Dr. Carmichael's laboratory at the National Hospital, there was every expectation that in due course he would make important scientific contributions in this field. Unhappily, the extension and development of his researches were retarded and tragically cut short. He chose as a special study the influence of "after-contraction" upon skilled movements, but during the war he performed all manner of experiments. Probably the neatest was a demonstration of the effects upon their skilled manipulation of offsetting aircraft controls from the middle line of the body, a matter of great theoretical interest as well as of practical importance. His first serious illness was four years ago, and it is certain that this and later illnesses were a source of grave anxiety to him, but very rarely did he show what a heavy burden he was bearing. Although naturally reserved, he was liked and respected by all with whom he came in contact, and he retained his pawky humour, much enjoyed by those who discerned it, even in his last illness.

HENRY ST. GEORGE BOSWELL, a direct lineal descendant of Dr. Johnson's Boswell, was educated at Clifton and the Universities of Aberdeen and Edinburgh. He qualified at Edinburgh in 1882 and then assisted Rutherford Morison at Hartlepool for a year or two before marrying Morison's sister. Later he practised at Saffron Walden, where he was on the staff of the local hospital. In 1900 he went back to the old family practice at Hartlepool and spent the remainder of his working life there, endearing himself to high and low alike and having a wide and intimate circle of youthful friends. He was physician to the Hartlepool Hospital until 1925, when he retired and went to live in Whitby. Six years later he made St. Boswells-on-Tweed his home. In the art of medicine Dr. Boswell was skilled and understanding to an unusual degree, and as a friend and counsellor he helped many through life's trials and difficulties. He died on Nov. 17, and leaves two daughters and a son, Dr. Philip Rutherford Boswell.—E. W. O.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Nov. 23 the following degrees were conferred:

D.M.—L. J. Bussell (in absence).
B.M.—R. Ebsworth Snow, T. A. Madden.

UNIVERSITY OF CAMBRIDGE

Postgraduate Medical School

The governors of Addenbrooke's Hospital, Cambridge, have confirmed arrangements for the institution of a school of clinical research and postgraduate teaching, as set out in a recently issued report of the University General Board, with the University of Cambridge. It will ordinarily be known as the Medical School, and will comprise the Faculties of Medicine and Biology "B." So far the University has constituted the Departments of Experimental Medicine and Radiotherapeutics as part of the scheme; arrangements have also been made for more closely co-ordinating the Departments of Pathology and Biochemistry with the Hospital, with a view to improving the pathological services of Addenbrooke's and increasing the facilities for teaching and research. The academic activities of these departments will in future be amplified by the inclusion of clinical and pathological material from both the Hospital and the East Anglian region.

The Council of the Medical School will consist of the Regius Professor of Physic, who will be the chairman, the heads of departments in the Faculties of Medicine and Biology "B," and four members appointed respectively by the Boards of the Faculties of Biology "B" and Medicine, by the General Board, the General Committee of the Hospital, and the honorary staff of the Hospital. The staffs of the Departments of Pathology and Biochemistry will be increased so that they shall be sufficient to deal with the routine pathological, bacteriological, and biochemical work of Addenbrooke's Hospital. The General Board have therefore agreed to propose the establishment of three new posts, namely, University Morbid Anatomist and Histologist, University Bacteriologist, and University Biochemist. The holders, beside conducting the work arising from the Hospital, may be required to undertake lecturing and demonstrating; and though debarred from private practice they may attend private patients, any fees being paid into a fund administered by agreement between the University and the Hospital. The General Board recommend that the first-named post be filled by Mr. A. M. Barrett, the second by Mr. M. H. Gleeson White, and the third by Dr. N. R. Lawrie.

When the postgraduate school is established the Senate of the Council will consider the possibility of setting up a pregraduate school of clinical teaching. It is hoped that Addenbrooke's will be designated a teaching hospital by the Minister of Health under the terms of the National Health Service Act, and in that event a Board of Governors would be appointed on which the University would be represented.

The forthcoming appointment of a university lecturer in pathology is announced in the *University Reporter*. The person appointed will be required to give instruction in bacteriology. Candidates should send their applications to the secretary of the Appointments Committee of the Faculty of Biology "B" at the Department of Pathology, Tennis Court Road, Cambridge, so as to reach him by Feb. 1, 1947. Candidates desiring further information about the duties and conditions of the post should write to Prof. H. R. Dean at the Department of Pathology.

An election to the Pinsent-Darwin studentship in mental pathology will be made in March, 1947. It is of the annual value of not less than £225 and is tenable for three years. The student must engage in original research into any problem having a bearing on mental defects, diseases, or disorders, but may carry on educational or other work concurrently. Applications should be sent before Feb. 28, to the secretary, Pinsent-Darwin Studentship, Psychological Laboratory, Cambridge. Applicants should state their age and qualifications and the general nature of the research they wish to undertake. No testimonials are required, but the names of not more than three referees should be given.

At a Congregation on Nov. 30 the degrees of M.B., B.Chir. were conferred by proxy on M. C. Joseph.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—J. F. Donovan and A. S. Ellis (with Mental Diseases (Psychiatry) in Part B). *Part A:* M. R. Clarke, Margaret T. Collins, D. D. Howell, A. Kamal, T. McLardy, A. B. J. Plaut, C. F. Rycroft, A. Shapiro, K. R. Stallworthy.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The President of the College received on Dec. 2 a letter informing him that Le Comité de l'Association Française de Chirurgie "a décidé de faire don au fonds pour la reconstruction du Royal College of Surgeons of England d'une somme de 50,000 francs." This gift has been received with most grateful appreciation by the President and Council and will give great pleasure to all the Fellows and Members of the College. The sympathy of their French colleagues and their generous and spontaneous help will be a further bond of union between the surgeons and people of the two countries.

At a meeting of the Council, held on Nov. 29, with Sir Alfred Webb-Johnson, Bt., President, in the chair, Sir Cecil Wakeley, Vice-President, was appointed Bradshaw Lecturer for 1947, and Dr. Frank H. Lahey (Boston, U.S.A.) was appointed to deliver the first Cecil Joll Memorial Lecture in September, 1947.

It was decided to publish a periodical from the College to contain news items and College lectures.

The terms of the Petition and draft Supplemental Charter were approved for submission to the Privy Council.

In regard to the National Health Service the Council passed the following resolution: The Council desires the Negotiating Committee to enter into discussions and negotiations with the Minister on the Regulations authorized by the National Health Service Act.

The Services

The President of the U.S.A. has bestowed the Legion of Merit, Degree of Commander, upon Surgeon Vice-Admiral Sir Sheldon F. Dudley, K.C.B., O.B.E., F.R.S., K.H.P., retired, for service as Medical Director-General of the Navy.

Col. K. S. Master, M.C., K.H.P., I.M.S., has been appointed Colonel Commandant of the I.A.M.C.

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services in the field:

O.B.E. (Military Division).—Lieut.-Cols. (Temp.) G. T. M. Hayes, M.C., and P. W. Kent, I.A.M.C.

M.B.E. (Military Division).—Capt. J. I. Rice, R.A.M.C.

Mentioned in Dispatches.—Capt. C. D. Sanders, R.A.M.C.

Majors (Hon. Lieut.-Cols.) R. J. C. Hamilton and H. B. Lee, and Major K. W. N. Palmer, R.A.M.C., have been awarded the Efficiency Decoration of the Territorial Army.

The Faculty of Medicine of the University of Oslo adopted in 1939 a scheme for the reorganization of the medical curriculum. The execution of this plan remained in abeyance during the war, and the Faculty of Medicine has now decided to appoint a committee representative of the main interests concerned to reconsider the problem. To aid this committee, the Norwegian Medical Society organized a series of debates at its headquarters in Oslo. As a preliminary to these debates, the views of several authorities were given publicity in the *Tidsskrift for Den Norske Laegeforening* of Nov. 15. In the first paper, the surgeon, Prof. Johan Holst, wrote: "Like our British colleagues, we should put the development of personality and character as the most important objective of an academic education." More concrete proposals concerned the speeding up of education. The prospective doctor should enter school at the age of 6 instead of 7, and the University at the age of 17, and he should qualify at 23, having studied medicine for six years, of which the last year should have been spent as an intern in hospital. In another paper, Dr. Hans Jacob Ustvedt emphasized the relative shortage of teachers of medical students. At Harvard University there are more teachers than students (673 to 500), while in Sweden there is one teacher to every eight or nine students. Norway has only one teacher to every fifteen students. The first meeting on Nov. 20 was remarkably well attended, and the show of grey heads and bald heads indicated that interest in the problems under discussion was not confined to the younger generation. The first speaker, a medical student, was not alone in complaining of a system which puts a premium on cramming, but it seemed to be easier to denounce it than to find an effective cure for it. A suggestion made by several speakers was that there should be a return to the old system of apprenticeship to certain approved doctors already in practice. On the subject of textbooks Prof. Kreyberg was vehement in his warning against any one book being authorized to the exclusion of others. "Let them be in any outlandish language whatsoever, but don't let us have *the* book which the student learns by heart as he crams it." Norway will shortly have a second university, at Bergen, and to a certain extent this will start with a clean sheet while the old university of Oslo may have more difficulty in making changes.

Medical Notes in Parliament

Milk Priorities

Dr. SANTO JEGER opened, on Dec. 3, a debate on milk priorities. He said that on Oct. 29 the Minister of Food issued to the medical profession a statement that an excessive amount of milk was being consumed. Compared with the war period the consumption of milk had increased by 400,000 gallons, or 44%, which was inconsistent with the statistics of disease. The official explanation was that certification by the medical profession had become less strict, but in his opinion an increase in minor ailments had a great deal to do with the increase in the consumption of milk. The Minister had appealed to the profession to adopt a more strict and accurate certification of diseases which required priority milk. Most doctors took a great deal of trouble to provide examination and an honest decision on patients who needed priority in milk. Some doctors were not so conscientious. He himself had been present not long ago at a conversation between two doctors, one of whom said: "You give me a certificate giving me priority in milk and eggs, and I'll give you one." The exchange was carried out. A doctor with a wealthy patient did not like to refuse a request for a priority certificate. Dr. Jeger recalled a letter to the *British Medical Journal* which told how a patient had changed her doctor to obtain milk for her cat. He thought that the categories in the schedule setting out reasons for giving priority certificates were too vague. Anaemias, varieties of debility, and psychological or nervous troubles causing loss of weight should be included in it. "Dyspepsia" and "colitis" were vague descriptions. Industrial workers confined to bed should get priority milk in the first ten days of illness and during convalescence. He suggested that there should be a new category of three and a half pints a week instead of doctors having to choose between two and seven pints a week. Doctors should give statements of illness, but the decision on priority should be made in the food office instead of in the doctor's consulting-room. The certificate should be valid for more than one month.

Dr. SUMMERSKILL said the decisions on priority were made by the scientific advisers of the Ministry of Health in co-operation with the advisory committee of the Medical Research Council. The Ministry also took into account publications by people like Prof. Cruickshank. Pathological priority categories took about 4% of the total consumption of milk in this country. The Ministry realized there were loopholes in certification and had decided that a letter should be published in the medical press. It was difficult to get the neurotic and hypochondriac person off the seat in the consulting-room and the general practitioner, a very harassed man, knowing there was a loop-hole, might do as he was requested. These cases added up to a formidable total. She had not heard of cases of doctors swapping certificates, but she instanced the issue of a certificate for 52 weeks. Such a practice would lead to lax certification. The convalescent industrial worker was covered. So far as minor diseases included in 2a were concerned, there had been no increase in consumption. The question of records must be examined by the medical profession and by the Government. She, when practising, had always felt that the categories were too vague, but the Ministry had to give the doctors some latitude. If the doctors did not observe the warning in the medical press the Ministry's next step would be to revise the Schedule. It would then give special consideration to 2c. It would also look into the position of the old people. The suggested ration of three and a half pints would remove the difficult patient from the chair in the consulting-room. That seemed a little immoral, but these difficulties had to be faced. Gastric ulcers were difficult to deal with as the sufferer might look healthy and the grant of priority milk rouse comment. She did not think it a hardship that patients had to get certificates renewed every month. Lax certification might follow if all certificates were made valid for three months. It would not be practicable for a professional committee of medical men to decide the eligibility of patients for milk. The Ministry would have to leave the general practitioner to decide.

The Willesden Affair

Mr. BOYD-CARPENTER inquired on Dec. 5 what action Mr. Bevan was taking to prevent the breakdown in hospital services threatened as a result of the action of the Willesden Council in directing that all nurses at that hospital who do not join a trade union should be dismissed.

On the same day Mr. BYERS asked how Mr. Bevan proposed to make good the deficiencies of doctors, nurses, and other staff who refused to comply with the demand of local authorities that they should join a trade union on pain of dismissal.

Answering the two questions together, Mr. BEVAN announced that he was sending a circular to local authorities pointing out that their primary duty as health authorities was to maintain the efficiency and smooth running of their health services and to ensure the welfare of the patients for whom they were responsible. All other considerations must be regarded as secondary. He added that while he was anxious that doctors, nurses, and members of similar professions should join a trade union or appropriate professional association, this was a matter which should not be determined by unilateral action of local authorities. He hoped there would be no breakdown of health services.

Mr. BYERS asked whether the Minister's reply could be taken as an assurance that the Government deprecated the irresponsible action of local authorities at a time when the nursing and medical professions were so shortly staffed.

Mr. BEVAN replied that the answer he had given was sufficiently clear. He did not wish to exacerbate feelings and hoped there would not be a repetition of the incident.

Mr. W. J. BROWN said Mr. Bevan's answer would be received with immense satisfaction by everyone who had the welfare of the health services and of the trade unions at heart.

Mr. BYERS, on Dec. 5, also asked Mr. Isaacs whether, in view of the injustice now being caused to individual nurses, teachers, members of certain religious bodies and others, by the enforcement of the "closed shop," it was still the intention of His Majesty's Government to leave this matter to both sides of industry.

Mr. ISAACS said that in so far as the cases to which Mr. Byers referred resulted from unilateral action by individual employers, regarding trade union membership of their employees, such action, whatever form it took, was to be strongly deprecated and was likely to be detrimental to harmonious industrial relations. The Government's view, in general, was that questions regarding terms and conditions of employment should be a matter for settlement between the two sides of industry in accordance with the constitutional machinery of the industry. He was not prepared to say that the Government would set up an inquiry. As a Minister he was using his influence with the organizations concerned to avoid these regrettable incidents.

SCOTTISH HEALTH BILL

In the House of Commons on Tuesday, Dec. 10, Mr. JOSEPH WESTWOOD, Secretary of State for Scotland, moved the Second Reading of the National Health Service (Scotland) Bill.

Mr. Westwood said that despite the progress made as a result of previous legislation there remained a large mass of sickness and defects of various kinds as revealed by the records of medical inspection of school-children, sickness returns of the insured population, and other figures. The Committee on Scottish Health Services reported in 1936 that in Glasgow about 16% of school-children were found to have ailments that could not be classified as minor; in the course of a year over 20% of the insured population were incapacitated for work, and the average time lost among the insured population was more than ten days per annum. Of the men applying for enlistment in the Army 38% were rejected on medical grounds. The vital statistics of Scotland were disquietingly less favourable than those of England and Wales and several other European countries.

With all these facts before them the committee came to the conclusion that changes in the size and distribution of the population, in social and economic conditions, in the habits and outlook of the people, and in the actual causes of death and ill-health required a readjustment of health effort. The first essential, to avoid overlapping, to secure a full return for expenditure, to keep the services in line with changing circumstances, and to secure that emphasis was distributed according to the social value of the varied services, was to integrate the separate services into a national health policy designed to promote the fitness of the people.

General Practitioner Service

Mr. Westwood went on to say that many persons, especially women and children, did not in fact receive adequate and timely attention because those responsible could not afford to pay for the services of a private general practitioner. He quoted the medical officer of health for Dundee who had said: "One of the most important criticisms of the organization as it exists at present is that advice and treatment are not immediately accessible to every individual unless the payment of medical fees is a matter of little or no moment."

These and similar findings had led to the committee's conclusion that as part of a policy for the promotion of the health of the people it was necessary to secure that so far as possible all members of the community should have available the services of a general medical practitioner. On grounds of administrative expediency as well as on grounds of national policy it had become imperative for the State to frame a policy to meet the needs of at least the dependants of insured persons, and others in similar economic circumstances, and to lay down the lines along which the medical services should develop.

The Bill which was now before the House was drafted and directed towards providing for Scots people a comprehensive health service. It placed for the first time on public authorities, central and local, the responsibility for seeing to the provision of all facilities needed for the health of the whole population.

Aims of the New Service

In the first place, it was to be the statutory responsibility of some public authority to provide every necessary form of health care—the family doctor, the specialist, the hospital, rehabilitation and convalescence, dental treatment, the care of sight and hearing, including the provision of artificial aids, special priority services for expectant and nursing mothers, young children, and school-children, and so on. There was to be full provision not only for the treatment of illness but also for the prevention of illness and the promotion of health.

Secondly, the Service or any part of it would be available to every man, woman, and child in the country. Although part of the cost was to be met from insurance funds there would be no insurance qualifications, nor any other kind of test based upon means, residence, or anything else. The new Service was for all practical purposes to be free of charge. This did not mean that it would not be an expensive business to provide the Service, although less expensive than allowing ill-health to continue unchecked. But the cost would be met mainly from the national Exchequer, and partly also from local rates and insurance contributions.

Central responsibility for the new Service as a whole was to rest with the Secretary of State. By his side, to give him expert advice on all aspects of the Service, there was to be a Scottish Health Services Council, with members drawn from all relevant fields of experience. Standing committees of that Council would be set up in connexion with particular parts of the Service.

Regional Boards and Executive Councils

Responsibility for the hospital and allied services was to rest in future with the Secretary of State. For this purpose all existing hospitals, local authority and voluntary, were to be transferred to him. The administration of these services was to be entrusted to a specially created regional and local organization. Five Regional Hospital Boards would act as agents of the Secretary of State, undertaking the general administration of the services in their areas. In turn, to act as agents of the Regional Boards for the control and management of particular hospitals, Boards of Management were to be set up. On these regional boards and boards of management members with all appropriate kinds of experience and local interests would find a place.

For the general practitioner services, Executive Councils were to be established, drawn mainly from local authorities and from representative professional committees in each area. The doctors and dentists would be encouraged to work from health centres, staffed and equipped so as to enable them to carry out their work in the most effective way. Responsibility for providing these centres would, in Scotland, rest in the first place with the Secretary of State. In order to improve the distribution of doctors throughout the country there would be provision for debarring additional doctors from entering the Service in an area already adequately covered. The sale and purchase of medical practices coming within the new Service would be forbidden, and compensation would be paid. Remuneration, while mainly by way of capitation payments, would include a basic salary element, which could be adjusted in accordance with the different needs of particular areas.

For a considerable range of local services, responsibility would rest as at present with the major local authorities, the county councils, and the town councils of the large burghs. In addition to their present maternity and child welfare duties, authorities would have a new duty to secure the provision of a home nursing service, and wide powers to undertake preventive and after-care services, including the provision of domestic help needed on health grounds.

The decisions taken by the Government were taken in the light of a great mass of information about the views and suggestions of the various interests concerned.

There were points of difference between the proposals in the Scottish Bill and those now embodied in the English Act. Conditions in Scotland were different in many important respects from conditions south of the Border. It was necessary,

therefore, to adjust the application of general principles to suit Scotland's particular circumstances and needs.

Health Centres

As regards the general practitioner division of the Service, the only important difference concerns health centres. In Scotland, where conditions in different local authority areas vary widely, and the country as a whole is not an unmanageable unit, the early steps in health centre development should be undertaken directly by the Secretary of State. While the Bill enables the Secretary of State's functions in relation to health centres to be delegated to local authorities, he did not intend to exercise that power in the early and experimental years of the Service. The family practitioner's contract, in the health centres, as outside, will be with the Executive Council.

Basic Salary

Although payment by capitation fees should represent the larger part of the doctor's remuneration, there should also be an element of basic salary. This was a method of adjusting remuneration to varying conditions in different parts of the country. Basic salaries by another name had for the last 30 years been an essential feature of the Highlands and Islands Medical Service. It was, too, a means of reducing competition between doctors for patients. Sale and purchase of medical practices coming within the new Service in Scotland would be prohibited. Doctors who suffered loss in consequence of this prohibition would have their share of the £66,000,000 compensation.

In the new Service the family doctor would be able to call in a specialist whenever his opinion was required. The specialist service must be based on the hospitals and would be the responsibility of the hospital boards, but they would make arrangements with the Executive Council to ensure the close association of the specialist and the general practitioner.

Hospital Organization

While everyone accepted the need for a regional hospital system, it was not equally appreciated that no system of this kind was possible so long as there were two different forms of hospital administration and ownership. In Scotland the voluntary hospitals had always had a very prominent place. Their costs in all directions had greatly increased and were still increasing. With any form of National Health Service it would only be right that they should be paid for their treatment of patients who took part in that Service. The payments for service to the State would bulk increasingly large in the revenue of the voluntary hospitals. The State could not go on handing over these large sums of money without having control. In Scotland there were about 250 hospitals belonging to the 55 local authorities and about another 220 voluntary hospitals, practically every one of which had a separate governing body. With this multiplicity of authorities you get overlapping, unnecessary competition, and gaps in the hospital service. The Hospital Surveyors spoke in terms of comprehensive units—large infectious diseases hospitals instead of small ones, the amalgamation of special hospitals for eyes, ears, nose, and throat, or cancer with the general hospitals. There was no possible chance of securing all these developments so long as the general hospital was a voluntary one and infectious diseases were the responsibility of a local authority. To an increasing extent we had to provide services which demand wide areas of up to half a million or a million people. The orthopaedic service was an example. A proper cancer service and the new branches of surgery like plastic and brain surgery needed an organization covering a million or perhaps even two million people.

These proposals were, so he thought, generally acceptable to those who have to work in the hospitals and even to some of the local authority and voluntary hospital people. We should have the same doctors and nurses, the same independent medical schools, many, perhaps, of the same people on the Regional Boards and Boards of Management, the same endowments would be available, even more than they were to-day, for new developments and for research. The maximum of independence and responsibility would be left with the Boards of Management.

Whereas the English Act puts the responsibility for the ambulance service on the local health authorities the Scottish Bill puts it on the Secretary of State. Although the number of hospital beds in Scotland was only about one-tenth of the total for the U.K., Scotland was training about a third of the medical students. Therefore the teaching hospitals bulked very large in the hospital service.

A full debate followed and will be reported in our next issue.

Medical News

Abstracts of World Medicine and *Abstracts of World Surgery, Obstetrics and Gynaecology* will make their first appearance in January, 1947. These two new journals are being published monthly by the British Medical Association, the first at an annual subscription of 3 guineas and the second at 2 guineas. Applications for subscription should be sent to: The Publishing Manager, *British Medical Journal*, B.M.A. House, Tavistock Square, London, W.C.1.

The Medical Section of the British Psychological Society will hold an open meeting in the House of the Royal Society of Medicine on Wednesday, Dec. 18, at 8 p.m. The meeting will be devoted to a discussion on "The implications of the National Health Service Act for all professional workers in the field of mental health."

The Thomas Vicary Lecture on "Naval Medicine in the Ages of Elizabeth and James" will be delivered before the Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.) by Dr. E. Ashworth Underwood on Thursday, Dec. 19, at 5 p.m.

The Association of Anaesthetists of Great Britain and Ireland (48 Lincoln's Inn Fields, W.C. Tel.: Chancery 6965) has arranged a dinner-dance, to be held at the Dorchester Hotel on Saturday, Dec. 21, at 7.30 p.m., in connexion with the centenary celebrations in London of the first administration of ether in Great Britain.

On Saturday, December 14, at 2.30 p.m., Sir Wilson Jameson will open a new rehabilitation and occupational therapy centre at the Bromley and District Hospital.

On January 1 the National Vaccine and Serum Institute of China (National Epidemic Prevention Bureau) will open its new biological laboratories. This marks the return of the Institute from wartime headquarters in Kunming to its original home, Temple of Heaven, Peking. A scientific session will follow the opening ceremony.

The American Group Therapy Association will hold its annual meeting at New York City in January, 1947. The programme will include sessions on group therapy in private practice, the parallel treatment of a group of pre-school children with a group of their mothers, and research in group therapy.

On Nov. 27 Mr. George Isaacs (Minister of Labour and National Service) inaugurated at Bridgend the first "remploy" factory established for the employment of the severely disabled who are registered under the Disabled Persons (Employment) Act, 1944, and unable at any time, or for any prolonged period, to undertake employment or to engage in work on their own account otherwise than under "special conditions." It is anticipated that a total of eight such factories will be operating by next April, and a further forty in the ensuing twelve months, and special provision is contemplated for the tuberculous and the epileptics.

Tributes to the memory of Dr. Harold Mason Leete, medical superintendent of the Hull City Hospital and Sanatorium at Cottingham and the Evan Fraser Hospital, were paid when an inscribed plaque was unveiled at the City Hospital. The plaque, provided by the staff, commemorates Dr. Leete's service as medical superintendent from July, 1930, until his death on Feb. 15, 1945. Dr. Nicholas Gebbie, M.O.H. for Hull, presided at the ceremony.

The Ministries of Health and Food advise the public not to eat pork, pork sausage-meat, ham, or any pork product unless it has been thoroughly cooked. In some districts it is customary to eat sausage-meat raw, spread on bread like a meat paste. This is a dangerous practice. The statement issued jointly by the two Ministries continues: "Illness may also arise from eating pork or pork products which have been insufficiently cooked. If pork, pork sausages and other pork products, including ham not bought already cooked, are thoroughly cooked, there should be no risk."

Dr. Carl Gentz, medical director of the Stockholm Corporation Tuberculosis Bureau, and two of its staff, Mr. Martin Korsner and Mr. Widlund, have arrived in this country to spend a fortnight studying British arrangements for the rehabilitation and aftercare of tuberculosis patients. Their programme, arranged by the British Council, includes visits to the Papworth Settlement, the British Legion's Preston Hall Settlement, the Egham Rehabilitation Centre, Farnborough County Hospital, and workshops, and discussions with experts.

Dr. Abdul Azim Bey, director of the Bilharzia Destruction Section of the Egyptian Ministry of Public Health, is visiting this country for a fortnight on his way back to Egypt from the United States. The British Council has arranged for him to visit institutions and meet experts concerned with tropical medicine in London and in Liverpool. He is one of the leading younger medical research workers in Egypt, and his work has been of special value to the Sudan Medical Service.

The Ministry of Food announces two improvements in the products distributed under the Welfare Foods Service. Potassium iodide has been added to Vitamin A and D tablets for expectant mothers. This addition has been made on the recommendation of the Standing Committee on Medical and Nutritional Problems and the Goitre Subcommittee of the Medical Research Council. Each tablet will contain 0.13 mg. potassium iodide in addition to 4,000 I.U. Vitamin A, 800 I.U. Vitamin D, and 250 mg. *B.P.* calcium phosphate. Ministry of Food cod-liver oil has now been "cold cleared," thus improving the appearance of the oil and removing the tendency for clouding in cold weather. Supplies of these improved products are now being manufactured and will shortly reach the public.

The annual report of the Bristol Hospitals Fund for 1945 has been published. The cover indicates that this Fund has raised £83,188 for voluntary hospitals and ancillary hospital services in the 7 years of its existence—a striking tribute to the value of contributory schemes. A letter from the chairman accompanies the report, and emphasizes the need for the continuance of voluntary contributions and for voluntary effort after the implementation of the National Health Service Act, which cannot happen until 1948 at the earliest. The report states that the new Hospitals Provident Fund, mainly intended for those who require assistance in connexion with the heavy expenses attached to maintenance and treatment in hospital or nursing home private or semi-private beds, was an immediate success.

The offices of the National Council for the Unmarried Mother and Her Child are now at 87, Tottenham Court Road, London, W.1. (Tels.: General, Museum 2969; Case Department, Museum 3780.)

Mr. Hugh P. Laird has taken over the secretaryship of the London Hospital Medical College on the retirement of Mr. E. J. Burdon.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the chief feature of the returns was an increase of 1,046 in the notifications of measles. The other large changes were rises in the incidence of scarlet fever 109 and of whooping-cough 77.

The increase in cases of measles was mainly contributed by the northern counties: Lancashire 413, Northumberland 152, Yorkshire West Riding 106, and Durham 72; the largest decline was Buckinghamshire 66. The largest increase in the notifications of scarlet fever was Lancashire 46. The local trends of whooping-cough fluctuated, with an increase in Lancashire 36 and decreases in Yorkshire West Riding 35 and Warwickshire 33. The chief changes in the notifications of diphtheria were decreases in London 15 and Lancashire 13, and there was an increase of 12 in Staffordshire. There were 7 further cases of paratyphoid in the continuing outbreak in Sheffield C.B. London had 21 and Surrey 11 cases of dysentery.

In *Scotland* rises were reported in the notifications of scarlet fever 65, measles 38, acute primary pneumonia 31, and diphtheria 10. Cases of scarlet fever in Glasgow increased from 107 to 157. The largest local change in the incidence of diphtheria was in the City of Dundee, where the cases increased from 4 to 12.

In *Eire* an increased incidence was recorded for diphtheria 10 and diarrhoea and enteritis 20, while whooping-cough declined by 28 cases. Of the 61 cases of diarrhoea and enteritis 50 were notified in Dublin C.B. An outbreak of typhoid involving 11 persons was reported from the urban and rural districts of Ennis, Co. Clare.

Quarterly Returns for Scotland

The birth rate during the September quarter was 20.9 per 1,000, the largest rate for any third quarter since 1925. The infant mortality rate of 45 per 1,000 registered births was the lowest ever recorded for any quarter in Scotland and was 13 below the average of the five preceding third quarters. The stillbirth rate was 30 per 1,000 total births. The maternal mortality rate of 1.7 per 1,000 live births was less than half the average of the preceding five third quarters and was much the lowest rate ever recorded for any quarter in Scotland. The general death rate was 10.8 per 1,000, the lowest since the third quarter of 1939. The death rate from all forms of tuberculosis was 70 per 100,000, and that from respiratory tuberculosis was 56; these rates were, respectively, 3 below and 2 above the average of the five preceding September quarters.

Week Ending November 30

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,383, whooping-cough 1,878, diphtheria 301, measles 6,005, acute pneumonia 745, cerebrospinal fever 47, dysentery 58, acute poliomyelitis 18, paratyphoid 19, typhoid 3.

No. 47

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 23.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946 (a)	(b)	(c)	(d)	(e)	1945 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	43	4	26	2	—	32	5	17	—	—
Deaths		1	1				—	—		
Diphtheria	319	12	107	39	12	654	39	206	84	20
Deaths	5	—	1		—	6	—	1	3	1
Dysentery	69	21	28	3	—	223	32	50	—	—
Deaths					—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			43	12	2			46	7	2
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				61					52	
Deaths	64	10	14		1	38	5	11	9	2
Measles*	5,428	215	301	57	47	453	42	81	154	4
Deaths	1	—	1		—	1	—	—	—	—
Ophthalmia neonatorum	61	6	23	—	—	68	6	12	—	—
Deaths										
Paratyphoid fever	20	2	—	—	—	10	—	2 (B)	—	—
Deaths	1	—	—		—	—	—	—	—	—
Pneumonia, influenzal	708	54	12	1	6	579	41	5	4	1
Deaths (from influenza)†	18	3	—		—	25	5	1	—	1
Pneumonia, primary			339	16				181	26	
Deaths		45			13		40		11	12
Polio-encephalitis, acute	—	—				4	—			
Deaths		—					—			
Poliomyelitis, acute	16	—	2	16	—	15	2	—	1	—
Deaths		—					—			
Puerperal fever		3	11		—		1	14		—
Deaths										
Puerperal pyrexia‡	124	10	9	1	—	132	12	8	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,402	102	338	37	45	1,911	155	284	34	53
Deaths	—	—	—		—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	3	—	—	14	2	7	—	1	4	—
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	2	1	—	—	—
Deaths					—				—	—
Whooping-cough*	1,773	106	205	43	31	1,232	62	61	26	8
Deaths	11	—	—		3	7	—	1	—	—
Deaths (0–1 year)	397	70	71		21	358	51	47	29	11
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,779	753	632		151	4,628	707	605	193	135
Annual death rate (per 1,000 persons living)			13·9					13·7	12·5	
Live births	8,867	1389	1134		258	6,488	954	748	341	227
Annual rate per 1,000 persons living			22·8					15·0	22·0	
Stillbirths	294	38	48			188	20	23		
Rate per 1,000 total births (including stillborn)			41					30		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

It is still not possible to publish the return of births and deaths for Eire for the weeks ended Oct. 26, Nov. 2, 9, 16, and 23.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Alkaline and Acid Ash Diets

Q.—*What are the alkaline and acid ash diets?*

A.—Alkaline and acid ash diets are not in general use to-day. The terms refer to diets composed of foods which are either alkaline or acid in reaction. Alkaline foods include milk, vegetables, fruits, beans, potatoes, carrots, beetroots, peas, and raisins. Among acid foods are meat and fish, eggs, bread, wheat-flour, oatmeal, rice, prunes, and plums. Neutral foods are said to be sugar, fresh butter, and fats.

An alkaline ash, or lacto-vegetarian, diet may be given in cases of renal failure; the benefits of this, however, are more likely to be due to its low protein content than to its reaction. Similarly, an acid ash diet may be ordered in diseases in which there is oedema due to depleted plasma proteins; in this instance the value lies in the high protein content of the diet and not in any particular reaction it may have.

Calcaneal Spur

Q.—*A man of 60 has painful heels. X-ray examination shows the presence of calcaneal spurs. Are the spurs the sole cause of the trouble, and what is the treatment?*

A.—Spurs on the under surface of the os calcis are usually caused by a plantar fasciitis—i.e., an inflammatory lesion of infective or toxic origin which may affect tendons, ligaments, or fascia close to their bony attachments. Probably as a result of the hyperaemia, the periosteum proliferates and a spur of bone is formed. This is most commonly seen on the under surface of the os calcis. An organism which commonly produced fasciitis and spurs in the old days was the gonococcus. Recurrent attacks of pain are due to recurrences of the inflammation, aggravated to some extent by the trauma of weight-bearing. Relief is often given by hollowing out the upper surface of the heel of the shoe and replacing it with a spongy rubber inset. Various forms of electrical treatment—e.g., ionization, short-wave diathermy, and so on, sometimes help. It is wise to make certain that the patient has no obvious focus of infection. Operation is rarely indicated unless the spur is so large that it can be palpated, or a callosity forms underneath it. If the operation is done in the acute stage it is often followed by an increased deposit of new bone. In the particular case quoted a thorough search for a possible source of sepsis appears strongly indicated.

Ulcerative Colitis

Q.—*A male patient, aged 26, has suffered from ulcerative colitis for about eight years. I would be grateful for any suggestions as to treatment.*

A.—The aetiology of ulcerative colitis is still uncertain. It has been suggested that it may be due to a specific enterococcus, to a chronic infection with *Sh. flexneri*, to a lack of some factor which is responsible for maintaining the health of the normal colon, or to a neurotic illness. It is probable that the condition should be regarded as a syndrome, different cases having a different aetiology. Every patient should have a careful sigmoidoscopic examination with, if possible, a barium enema. After eight years there may be strictures of the colo or a potentially malignant polyposis.

Medical treatment should be tried first. If there is an acut flare-up the patient should be in bed. Diet must be highl nutritious and completely free from all roughage. There is n specific remedy and a trial may have to be given to man different ones. Sulphasuxidine retention enemata (2%) wit full doses by mouth, supported by penicillin, may be successf in some cases, in others there may be symptomatic improv ment only following control of the secondary invading orga isms. Local treatment may consist of retention enemata of silv nitrate 0.5%, tannic acid (2 gr. to the ounce—0.13 g. to 28 ml. or of bismuth subgallate (2 gr.—0.13 g.) in a suspension mucilage. If diarrhoea is frequent and painful, relief may b obtained from a starch and opium enema. Recently som dramatic responses have been reported after the ingestion raw pig's intestines. A dried extract is now available; it shoul be given in doses equivalent to 1/2 lb. (225 g.) of the ra material daily and must be continued for at least one monti Any anaemia should be dealt with by repeated transfusion of fresh blood; in the opinion of many this forms our be method of treatment. Liver extract has no particular valu but if the patient has existed for a long time on a restricte diet several injections of a crude preparation should be give

Surgery is best kept until medical treatment has failed, b should not be delayed until the patient is moribund. Th mortality for any operation in this condition is high—ov 30%. A transverse colostomy or an ileostomy is the operatio of choice, but in any case the artificial anus should be retaine for at least a year, and may have to be kept indefinitely. F strictures or polyposis a colectomy may have to be advised.

Rh Factor and Blocking Test

Q.—*Please define Rh factor, rh, Hr, Rh-positive, and R negative. What is the antigen block principle and how is R typing carried out?*

A.—The term "Rh factor" has been used with a variety shades of meaning. In a general sense it signifies a whole co plex system of blood-group antigens and antibodies; in the mo restricted sense it means the antigen D, described below. Th terms "rh factor" and "Hr factor" have little meaning in th light of the present theory of the Rh system; the rh factor m be equated with the antigen combination cde and the Hr fact with c.

The Rh system of antigens is now regarded as being due the action of six genes: C, c, D, d, E, and e (disregarding som rare varieties, which, however, fit admirably into an extensio of the scheme). Three loci, closely adjacent to one another o a single chromosome, are involved. One locus can be occupie by one of the allelomorphic genes C or c, another by D or d and the third by E or e. Thus a single chromosome will carr three of these genes (e.g., CDe or cDE) and an individua having received one such chromosome from each parent, ma possess Rh genes of three, four, five, or six kinds. Owing the closeness of the three loci, crossing over between them extremely rare and an individual almost invariably passes o intact to each child one or other of the chromosomic combina tions received from his or her parents. Each gene gives rise a corresponding blood-group antigen called by the same lett as the gene. Each antigen is recognizable by means of a sing agglutinin called anti-C, anti-c, etc. (except that no agglutini for d has yet been described). Every person thus has from thre to five recognizable red-cell Rh antigens.

There is general agreement upon the scheme described abov but some disagreement as to which genotypes shall be calle Rh-positive and which Rh-negative. For clinical purposes it most desirable that all persons possessing the gene and antige D should be called Rh-positive, and those lacking D Rh negative. In a more restricted sense, however, only the com mon genotype cde/cde is regarded as Rh-negative; the rare types lacking D, such as Cde/cde, must then be called Rh positive.

Rh typing for clinical purposes is carried out by treating th red cells of the person to be typed with anti-D (commo anti-Rh) serum in a small test-tube at 37° C. (98.4° F.) fo two hours, and then examining the cells microscopically fo agglutination. For a full Rh typing (which allows the ge

type to be determined absolutely or with a high degree of probability), the cells are tested with each of the five sera already mentioned.

The blocking test depends upon the existence of two forms of anti-D, one which agglutinates and one, the incomplete or blocking antibody, which attaches itself to the antigen on the red cells without agglutinating them but prevents the agglutinating antibody from doing so. Cells known to contain D are incubated with the serum suspected together with a known agglutinating antibody. Failure to agglutinate indicates the presence of incomplete or blocking antibody.

Blockage of Eustachian Tube

Q.—*I developed a partial blockage of the Eustachian tube over a year ago. Orthodox treatment has given no relief at all. The partial blockage appears to be at the pharyngeal end of the tube and is most marked on swallowing fluids or on yawning. Hearing is noticeably impaired on the affected side. Investigation has ruled out any serious pathological condition.*

A.—The blockage at the pharyngeal opening of the Eustachian tube is probably due to inflammatory swelling of the lymphoid tissue normally found there in greater or lesser amount. Orthodox treatment having failed to relieve the condition, radiotherapy should be worthy of trial. This treatment has been extensively used in the U.S.A., particularly by Crowe, of Baltimore, whose paper will be found in the *Annals of Otorhinolaryngology* (1945, **50**, 15). The intention is to irradiate sufficiently to destroy the lymphoid tissue without affecting the mucosa. Radium or radon are preferable to *x* rays because the effects are more easily localized. The radium or radon container, attached to a straight applicator, is passed along the floor of the nose so that it lies alongside the Eustachian opening. The time of application should be calculated by a radiotherapist, depending on the dose and screening.

Cocaine Solutions

Q.—*Is there any simple method by which one could check the amount of cocaine in, say, a 3% solution made up by the local chemist? Sometimes it seems that such a solution is not as strong or as effective as it ought to be.*

A.—There is no simple method which the ordinary general practitioner can use to determine the strength of a small amount of cocaine solution. If he is doubtful about a particular solution he should discuss the question with the city analyst or the county analyst. These officials exist (partly) to ensure that solutions of cocaine and of other things are correctly prepared, and they work through the machinery set up by the Food and Drugs Act. The probability that a solution of cocaine is incorrectly dispensed is very small indeed. Its preparation is a simple matter for a pharmacist, who receives a long training in dispensing.

Wilson's Disease

Q.—*A boy of 16 died of Wilson's disease—hepato-lenticular degeneration. He had had a severe jaundice in the first fourteen days of life, bronchopneumonia at the age of 4, and glandular fever at the age of 8. What is the probable fate of the two other children in the family, a girl of 19 and a boy of 12?*

A.—This case presents an unusual feature. Jaundice within a few days of birth is not a recognized symptom of Wilson's disease. It is, on the other hand, a symptom of haemorrhagic disease of the newborn in which jaundice may be associated with lesions in the corpus striatum, that is, in the same region as Wilson's disease, and these lesions may cause permanent symptoms of striatal disorder. Nothing is known about the causation of Wilson's disease except its familial character. The history in this case suggests two possibilities. (1) That this is not a case of Wilson's disease but of the late results of haemorrhagic disease of the newborn, or (2) that the two disorders, in some cases at any rate, may be nosologically identical. It would therefore be wise to have the blood of the mother and the two remaining children examined for the Rh factor and to discuss the case afresh with the pathologist. Assuming that the case is an example of Wilson's disease, not enough is known about its causation to estimate the risks of its appearance in siblings, but it would be helpful to examine the cornea in the brother and sister for the Kayser-Fleischer ring, which would indicate the presence of the disorder. A negative finding, however, would not exclude the risk of its subsequent development. The abdomen should be examined for evidence of cirrhosis of the liver. It is doubtful if tests of liver function would be of value.

Mental Deficiency

Q.—*Under the Mental Deficiency Acts can a ten-year-old mongolian idiot be taken out of the custody of the parents? The child has attended the village school for the past four years. Now the local education authority proposes to transfer the child to a special school and the parents are opposed to the suggested change.*

A.—If a child is certified as a mental defective under the Mental Deficiency Acts of 1913 to 1927, the local authority have power, if in their judgment the circumstances justify the step, to over-ride the parents' wishes and send the child to a special school. The sole criterion is what is best in the interests of the child. Possibly the child was reasonably well suited to the infant class of the village school for the past four years but has now outgrown it. If the parents wrote to the General Secretary of the Provisional National Council for Mental Health, at 39, Queen Anne Street, W.1, they would doubtless receive helpful advice.

INCOME TAX

Car Transactions

F. G. bought a new car in July, 1946, for £581, selling the old car for £225. The written down value of the old car, after deducting the 1946–7 allowance, was £33.

*** The assessment for 1946–7 will not be affected. For 1947–8 F. G. will be entitled to an initial allowance of 20% of £581 = £116, and a wear and tear allowance of 25% of £581 = £145, £261 in all. Per contra he will have to bring in as chargeable, whether the above claim is made for the new car or not, the "balancing charge" prima facie of £225 − £33 = £192. This charge, however, should not exceed the total of the allowances received on the old car; thus, if its original cost to F. G. was, say, £200 and the total allowances have therefore been £200 − £33 = £167, that amount, and not £192, is the amount of the balancing charge.

Travelling Expenses

I. M. is taking up an appointment shortly at a hospital, the journey to which from the residence is "long and difficult by public transport, but quite short by car." What allowance can be claimed if a car is bought for the purpose costing, say, £500?

*** No allowance will apparently be due. The cost of travelling between one's residence and the place where the duties of an office or of employment are performed is not a deductible expense. I. M. is in the position of many thousands of suburban residents who cannot deduct the cost of their season tickets to London in calculating their income-tax liability.

Car Expenses

A1 is medical officer of health for a district council and assistant medical officer of health for a county council. He receives a car allowance of £28 per annum from the latter, but no allowance from the former council. He bought a car in May, 1943, for £65 and received £60 from an insurance company in respect of its loss in Dec., 1943. He then bought a car for £100, which he sold in April, 1946, for £240, replacing it by a car which cost £260. What allowances can be claimed for 1944–5 and 1945–6?

*** It is assumed that A1 can arrive at a reasonably close statement of his running costs, including insurance, licence, etc. The first car, which was disposed of before April, 1944, does not affect the allowances due for the subsequent years. As regards the second car he is entitled to a wear and tear allowance for 1944–5 of £22 and for 1945–6 of £18. On the other hand, if that car was sold on or after April 6, 1946, he will be liable to a "balancing charge," the maximum amount of which will be the total wear-and-tear allowances given in respect of that car—i.e., £22 + £18 = £40. Some restriction of the total of running costs plus wear-and-tear allowances (less of course the £28 received from the county council) may be due if the cars have been used for private purposes.

LETTERS, NOTES, ETC.

Hospital Repairs

Dr. LESLIE HARTLEY writes from Camberley: The Treasurer of St. Thomas's Hospital told us at the old students' dinner that there was a ward at the hospital in which the blitzed windows had not yet been replaced by glass in spite of continual applications for a licence. The result is that the patients are either in semi-darkness or have artificial light. I think Mr. Bevan, the Minister of Health, in association with Mr. Shinwell, the Minister of Fuel, should bring this to the notice of Mr. Bevan, the Minister of Housing, otherwise the public will have little faith that this dual personality will deliver the goods on April 1, 1948, when the new Health Service comes into being.

Midwife and Doctor: Conduct of Labour

Dr. RICHARD A. MANCLARK (Great Bookham) writes: Surely the correct thing for the midwife is to obey the doctor and mention to her supervisor about the doctor's lack of interest in using a mask. New C.M.B. rules might simplify this matter. The attitude of doctors who can apparently decide whether their nasal secretions are harmful or not to the patient without bacteriological help indicates the drastic changes necessary in our education and approach to the art and science of obstetrics.

Case of Clicking Ears

Dr. R. D. ALLISON (Preston) writes: Referring to the case of clicking ears recorded by Dr. Elliott Emanuel (Nov. 2, p. 652): the mentioned soft crackling noise audible to others I can produce at will—bilateral or unilateral, fast or slow. I was unaware that this phenomenon was considered abnormal.

Mr. CHARLES TAIT (Windsor) writes: The correspondence about clicking ears prompts me to mention my personal experience of this phenomenon. This differs from the cases which you have reported in that it is under voluntary control. I have since childhood been able to produce this sound at will, and occasionally spontaneously when swallowing; and this is loud enough to be heard by an observer if he applies his ear to mine. I imagine that this is brought about by the opening of the Eustachian tubes, as has been suggested by Dr. G. A. Moulden (Nov. 23, p. 796).

Car Sickness in Children

Dr. C. R. CROFT (Plymouth) writes: The expert who answers the question on car sickness in children (Nov. 30, p. 842) recommends glucose and glasses. I have no experience of the latter, but glucose, even when easily obtainable, was without particular merit. I venture to recommend the following methods. (1) For short journeys. Boredom, particularly as a reaction after excitement such as a party, is the most precipitating factor. Food has no influence except that a child finds it more satisfactory to discard a good bellyful than a mass of mucus. The following will relieve boredom and prevent sickness: (*a*) Well-chosen anecdote. This is difficult to sustain and may be relieved by (*b*) raucous song, or (*c*) a supply of any food which is strictly not to be eaten yet reasonably accessible. Efforts to chew an apple silently are very effective. (*d*) A cargo of contraband or loot, calling for a sharp look-out to be kept for policemen. It is pleasant to record that over a follow-up period of seven years no instance of gross juvenile delinquency has been attributed to this form of therapy. (2) For long journeys. Children should be prepared for bed at the usual hour. With the help of luggage and 2–3 cot mattresses a communal bed is prepared in the back of the car, and the children are bedded down there in the proper manner. A start is made when order has been reasonably established, and by 8 p.m. the children will be sleeping soundly, and the parents are free to dine in comfort, the car and contents being left in the hotel yard. On arrival at destination in the early hours the children are carried to bed and will wake up in excellent —if not too hearty—spirits next morning.

The R.N.V.R. Club and Welfare Fund

Lieut. The Hon. W. W. ASTOR, R.N.V.R. (chairman, R.N.V.R. Club) writes: During the war no fewer than 2,700 doctors held commissions in the R.N.V.R. They served with great distinction in all classes of ships and in all parts of the world. Many lost their lives. It may therefore interest members of the medical profession to know that the R.N.V.R. Officers' Commemoration Fund has been opened to commemorate in a practical way the part R.N.V.R. officers played in the war and, in particular, those who lost their lives. The Fund has two objects (1) to purchase and equip the new premises of the R.N.V.R. Club, and (2) to start an adequate welfare fund to help R.N.V.R. officers and their dependants who may stand in need. The new club will have a memorial tablet and relatives of officers who were killed may through this fund have officers' names inscribed on it. This club was started during the war, and has grown from nothing to an institution with 10,000 members, and it provides good and cheap meals, accommodation and amenities, particularly for junior officers. But it must leave its wartime premises, and without help it cannot get into new premises. The administration of the welfare fund is closely integrated with that of King George's Fund for Sailors. We sincerely hope that many members of the medical profession, so many of whom served in the R.N.V.R., will give their support. The money is urgently needed. R.N.V.R. officers themselves have generously supported the fund, but most of them are young, and it is hoped that the outstanding part that they played in the war (when they formed 80% of the officer strength of the Navy) will commend this appeal favourably to their fellow countrymen. Cheques should be sent to Commodore Earl Howe, R.N.V.R. Club, 52, Pall Mall, London, S.W.1.

"The Miasm of Marasmus"

Lieut. M. I. BOSTOCK, R.A.M.C. (M.E.L.F.) writes: It is interesting to speculate whether the diarrhoea of a new type which is discussed in the annotation "The Miasm of Marasmus" (Oct. 5, p. 497) is in any way related to the acute benign gastro-enteritis one frequently sees in young troops in the Middle East—possibly imported into the U.K. by returning troops. During this summer I have been R.M.O. with two units in Egypt and Palestine with a large proportion of very young soldiers (mostly aged 20 or younger), and about 100–120 cases have passed through my hands. Most of these bore a striking similarity. Almost all started abruptly with pyrexia of 100–105° F. (37.8–40.6° C.) and severe frontal headache, frequently a relative bradycardia of under 100, and sometimes mild meningism and widely dilated pupils were seen. Simultaneously or a few hours later symptoms of acute gastro-enteritis appeared, usually but not always with more diarrhoea than vomiting and moderate abdominal colic. The diarrhoea is watery and profuse—mucus occasionally and blood seldom being seen (and then usually the case proves to be a true dysentery). The pyrexia usually abates after 36–48 hours, and the gastroenteritis responds rapidly to 24 hours' starvation and large doses of kaolin and opium and belladonna. The patient is usually on his feet again and feeling perfectly fit 5 or 6 days after the onset of symptoms. These symptoms are not unlike those of preformed enterotoxin food poisoning, but the incidence and epidemiology was much more suggestive of an infective agent—possibly fly-borne—and as those cases that were admitted to hospital rather than unit sick bay seldom if ever had pathogens isolated from their stools, it seemed possible that this condition was a form of virus infection. Cases seemed to occur relatively seldom among older troops or troops with more than a few months' service in the Middle East.

Recurrent Bee Stings

Miss ANN SHERWOOD (Henley) writes: I have just read the "Any Questions" on "Recurrent Bee Stings" (Sept. 28). I was stung a few weeks ago and I too had an experience in some respects similar to that of the farmer. I became flushed all over, arms, legs, body and face, and I had a slight palpitation. My eyes became inflamed and I soon broke out into a profuse perspiration. I became normal after about 15 minutes after I had rested, though I felt slightly shivery.

Correction

We regret that in the leading article "Research in Tropical Medicine," published in the *Journal* of Dec. 7 we erred in attributing to the Liverpool School of Tropical Medicine the discovery of "an entirely new range of chemical substances having therapeutic action on the malarial infection of birds." The credit for this work should have been given to the members of the Imperial Chemical Industries team in Manchester. The members of the Liverpool School made their contribution by applying the new drugs to the treatment of human malaria and the investigation of the pharmacology of these drugs in the human subject.

Disclaimer

Mr. W. GRANT WAUGH (Durham) writes: I shall be very grateful if you will be good enough to publish a disclaimer of the entirely unauthorized use of my name in connexion with the alleged "arthritis cure" in Sunday and daily papers recently. I can assure you that this was not only not authorized or connived at but was made in contravention of a direct promise given me by the papers concerned. Those who know me would, I think, agree that notoriety of this sort is extremely distasteful to me, while the lurid description of the treatment merely gives rise to unjustified hope of "cure" to a very large number of sufferers.